



**RAND**

## *Analytic Architecture for Joint Staff Decision Support*

*Leslie Lewis, John Schrader, James Winnefeld,  
Richard Kugler, William Fedorochko*

This document has been approved  
for public release and sale; its  
distribution is unlimited.

**National Defense Research Institute**

DTIC QUALITY INSPECTED 3

19950619 009

The research described in this report was sponsored by the Joint Staff. The research was conducted in RAND's National Defense Research Institute, a federally funded research and development center supported by the Office of the Secretary of Defense, the Joint Staff, and the defense agencies under Contract No. MDA903-90-C-0004.

**Library of Congress Cataloging in Publication Data**

Analytic architecture for Joint Staff decision support / Leslie

Lewis . . . [et al.].

p. cm.

MR-511-JS.

"Prepared for the Joint Staff."

Includes bibliographical references.

ISBN 0-8330-1623-7

1. United States. Joint Chiefs of Staff—Management.
2. Military policy—Decision making. I. Lewis, Leslie.
- II. United States. Joint Chiefs of Staff. Joint Staff.

UA23.7.A53 1995

355.3 '30042 '0684—dc20

95-1950

CIP

RAND  
Copyright © 1995

RAND is a nonprofit institution that helps improve public policy through research and analysis. RAND's publications do not necessarily reflect the opinions or policies of its research sponsors.

Published 1995 by RAND

1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

RAND URL: <http://www.rand.org/>

To order RAND documents or to obtain additional information, contact Distribution Services: Telephone: (310) 451-7002; Fax: (310) 451-6915; Internet: [order@rand.org](mailto:order@rand.org).

**RAND**

## *Analytic Architecture for Joint Staff Decision Support*

*Leslie Lewis, John Schrader, James Winnefeld,  
Richard Kugler, William Fedorochko*

*Prepared for the  
Joint Staff*

Accession For	
NTIS	CRA&I <input checked="" type="checkbox"/>
DTIC	TAB <input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification .....	
By .....	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

**National Defense Research Institute**

## Preface

This report summarizes the findings of Task 1 of "Analytic Architecture for Joint Staff Decision Support Activities," a RAND study sponsored by the Force Structure, Resources, and Assessment Directorate (J-8) within the Joint Staff. After completing a systems approach to assessing current analytic capabilities, the authors will make recommendations on how the analytic capabilities might be improved.

This study summarizes the findings contained in two earlier project papers, "The JSPS-PPBS Interface: Providing the Necessary Analytic Tools for the Post-Cold War Era" and "Assessment of the Joint Staff's Analytic Support Requirements of the Joint Requirements Oversight Council (JROC) and Defense Acquisition Board (DAB) Processes," as well as three project briefings previously presented to the project sponsor and selected Joint Staff members.

This work was performed within the International Security and Defense Policy Center of RAND's National Defense Research Institute (NDRI), a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, and the defense agencies.

# Contents

Preface .....	iii
Figures and Table .....	vii
Summary .....	ix
Acknowledgments .....	xiii
Acronyms .....	xv
1. INTRODUCTION .....	1
Background: The Chairman's and the Joint Staff's Role .....	2
The Roles and Functions of the Chairman .....	2
The Joint Staff .....	5
Study Approach .....	7
Organization of This Report .....	8
2. THE KEY DECISIONMAKING PROCESSES .....	9
The Formal Processes .....	9
Planning, Programming, and Budgeting System .....	9
The Defense Planning and Resources Board and the Executive Committee .....	10
The Joint Strategic Planning System .....	11
The Requirements Process .....	15
Joint Requirements Oversight Council and the Defense Acquisition Board .....	16
Informal Decisionmaking Processes .....	21
The Base Force Decision Process .....	21
Bottom-Up Review .....	23
Observations About the Interrelationships of the Decisionmaking Processes .....	25
Informal Processes .....	25
Formal Processes .....	25
3. ANALYTIC ENVIRONMENT AND INFORMATION NEEDS .....	28
Changes in the Environment .....	28
Resource Allocation Functions That Require Support .....	30
The Chairman's Analytic Support Requirements .....	33
Semi-Structured and Unstructured Information .....	35
4. AN ANALYTIC-SUPPORT STRUCTURE .....	36
Elements of an Analytic-Support Architecture .....	36
Some Considerations for an Analytic Architecture .....	38
Assessing Attributes of a Framework: A Theater-Level Example .....	39
5. SOME ORGANIZATIONAL CONSIDERATIONS .....	43
Functions and Processes .....	43

Some Management Principles .....	47
Some Observations .....	48
Bibliography .....	51

## Figures

1. Organization of the Joint Staff Directorates, 1993 .....	5
2. JSPS Interface with the PPBS .....	11
3. JSPS Overview .....	13
4. System Acquisition Life-Cycle Process .....	15
5. JROC/DAB Process .....	16
6. DoD Resource Decision Framework Specified in DoD Documents .....	29
7. DoD Resource Framework: PPBS Environment from Last Cycle ...	31
8. Information Needed to Support the CJCS .....	34
9. Structure the Decision Support Process to Plan for Uncertainty ....	37
10. Link NMS to Force Options .....	38
11. Theater-Level Assessments: Application to Korea .....	39
12. Timely Quality Information Is Critical .....	44
13. Roles of the Chairman and the Supporting Organizations .....	46
14. Demand, Supply, and Integration .....	47

## Table

1. Sampling of Analytic Tools .....	41
-------------------------------------	----

## Summary

This report presents results from the first of a two-part study of the Joint Staff's analytic-support needs. The research focuses on the role of the Chairman, Joint Chiefs of Staff (CJCS), in the context of his authority as newly defined in the implemented Goldwater-Nichols legislation. The purpose of the study is to determine what kind of analytic support is necessary to inform the CJCS's decisionmaking functions and to outline a possible architecture for providing that support. The authors address five main questions:

- What roles do the CJCS and the Joint Staff play in DoD decisionmaking processes, particularly those involving resource identification and allocation?
- Where do the various Planning, Programming, and Budgeting System (PPBS)-related processes that involve the Joint Staff intersect?
- What is the state of the Joint Staff's current analytic environment and what information does it require to support well-informed decisionmaking?
- What would an ideal analytic-support architecture look like?
- How easily can existing processes accommodate recommended changes?

## Chairman and Joint Staff Participation in DoD Decisionmaking Processes

The CJCS's role in resource allocation and management has made him an important player in the major formal and informal decisionmaking processes. The formal processes include the Planning, Programming, and Budgeting System (PPBS), the Joint Strategic and Planning System and Joint Strategy Review (JSPS/JSR), and the Joint Requirements Oversight Council/Defense Acquisition Board (JROC/DAB) process. We looked at two informal processes: the Bottom-Up Review (BUR) and the Base Force Decision Process.

The CJCS is heavily involved in all phases of the PPBS process, which links national security strategy to specific programs and is DoD's primary system for planning and managing resources. It was designed to facilitate fiscally constrained planning, programming, and budgeting in terms of complete programs. It sets the framework for the resource allocation and management



process. The JSPS and the JROC/DAB processes function to support PPBS activities.

The JSPS is the formal means by which the CJCS prepares strategic plans, a congressionally mandated duty. Its objective is to provide direction and military advice to the services and to the Commanders-in-Chief (CINCs). Its structure includes both political and fiscal considerations in order to link the national military strategy with resource decisions, particularly concerning force structure. It provides a key element of the planning phase of the PPBS. Integral to the process is the JSR, which attempts to project the long-term strategic environment.

The two-year process has recently been simplified to make it more consistent with the events and schedules of the PPBS. Nonetheless, given the rapidly changing DoD environment, the JSPS continues to be overly process-oriented. There are problems with the mixing of capabilities and objectives planning. Steps have been taken to better integrate the strategic planning process into the PPBS; however, because the JSPS is not a fiscally constrained process, it continues to operate outside of the resource allocation process. The separation of the JSPS from the PPBS is further exacerbated by the difficulty the JSPS has in providing real-time decisionmaking information.

The JROC/DAB process focuses on system acquisition. The JROC is not fiscally constrained. The JROC and DAB processes are still evolving. The initial JROC concept was to provide a vehicle for the examination of capabilities and employment concepts, with a concentration on individual service system acquisition. The goal of the new 5000 series of acquisition directives was to acquire and link cross-service capabilities rather than to fulfill individual service requirements.

Informal decisionmaking processes occupy a growing share of the CJCS's and Joint Staff's attention and analytic resources. We found that the Joint Staff faces increasing demands for analysis to support such informal processes; often this analysis is folded back into the formal processes.

Both the formal and informal processes require a strong analytic support structure. A decisionmaking framework and a set of supporting tools should provide both analysts and decisionmakers with quality information about strategy and capabilities. The framework and tools would promote a stronger linkage between the strategy and fiscal constraints. The decisionmaking framework would support the Joint Staff in both the formal and informal processes.

## Current Analytic Environment and Information Needs

The Joint Staff's analytic environment has changed in the 1990s in several ways:

- The Joint Staff's highly interactive analytic environment is becoming more complex as it must provide information and analysis to the CJCS on a wide range of decisions. The complexity is found in the wide range of issues that must be addressed, combined with a plethora of relevant information.
- The tempo of analysis has increased dramatically. The CJCS and the services are frequently expected to provide "quick" turnaround analyses. These requests often stress existing processes, which are structured to produce results based on predetermined timelines that may stretch over two to three years. The Office of the Secretary of Defense (OSD) and Joint Staff members are unanimous in their opinions that the demands for credible "quick turnaround" analyses will increase as the strategic and fiscal environments become more uncertain.
- These analyses are becoming more demanding, because they must consider all related factors, such as costs, capabilities, and effectiveness, prior to positing a position.

## An Analytic Support Architecture

To improve the Joint Staff's capability for providing the requisite analytic support, we recommend a number of criteria for redefining analytic-support requirements. We also recommend consideration of a possible architecture for satisfying those requirements—one that develops linkages between the national security strategy and resources. The focus is on DoD-wide capabilities and the resources necessary to support them. Its purpose is to provide a common framework for all participants in resource allocation, management decisions, and analysis.

An application of RAND's recommended framework structure to the Joint Staff's unique responsibilities could improve the decisionmaking process by providing decisionmakers with a continuous-thread hierarchical linkage between top-level security objectives and specific DoD programs. The framework could also generate alternative resource cost strategies using quantitative and replicable data. Furthermore, the system would provide an audit trail of resource trade-off options and decisions.

We also discuss how a "tool box" of modeling and data bases as well as personnel with specific expertise provides additional analytic support.

## **Organizational and Functional Issues**

We examined several organizational changes that the Joint Staff might consider to facilitate an analytic-support architecture:

- Centralizing technology, requirements, and acquisition functions.
- Consolidating the modeling and simulation activities, which would become the underpinnings of our tool-box concept.
- Merging of the exercise program responsibilities into operations.
- Strengthening links between the fiscally constrained strategy functions with force structure and resource assessments.
- Redefining logistics requirements to reflect cross-service and CINC requirements.

## Acknowledgments

The project team would like to thank the several members of the Joint Staff for their assistance. Rear Admiral Dennis Blair (Assessments, J-8) discussed his perspectives with the project team concerning what types of analytic support are needed on the Joint Staff. Rear Admiral Conrad Lautenbacher reviewed the various briefings and provided insights into how analysis is used by the CJCS and how the staff supports those roles. Dr. Vince Roske provided project guidance and key formal documentation and background materials.

We would also like to thank Marney Peet and Stephanie Deter for their assistance with the project's research and preparation of the final report.

This report (as do the other publications associated with this project) reflects the viewpoints of the project team only.

## Acronyms

ACAT	Acquisition Category
ACQN	Acquisition
ASD(PA&E)	Assistant Secretary of Defense (Program Analysis & Evaluation)
BES	Budget Estimate Submission
BUR	Bottom-Up Review
C <sup>4</sup>	Command, Control, Communication, and Computer Systems
CG	Commanding General
CINC	Commander-in-Chief
CINCPAC	Commander-in-Chief, Pacific Command
CJCS	Chairman, Joint Chiefs of Staff
CPA	Chairman's Program Assessment
CPG	Contingency Planning Guidance
CSPAR	CINC's Preparedness Assessment Report
DAB	Defense Acquisition Board
DDFSR	Deputy Director, Force Structure and Resources
DDR&E	Director, Defense Research & Engineering
DEPSECDEF	Deputy Secretary of Defense
DIA	Defense Intelligence Agency
DMR	Defense Management Review
DMRD	Defense Management Reduction Directive
DoD	Department of Defense
DP	Defense Program
DPG	Defense Planning Guidance
DPRB	Defense Planning and Resources Board
DRB	Defense Resources Board
EXCOM	Executive Committee
FORSCOM	U.S. Forces Command
FYDP	Future Years Defense Plan
IPL	Integrated Priority List
JCS	Joint Chiefs of Staff
JMNA	Joint Military Net Assessment
JOPES	Joint Operations Planning and Execution System
JOPS	Joint Operations Planning System
JPD	Joint Planning Document
JRMB	Joint Requirements and Management Board
JROC	Joint Requirements Oversight Council
JSA	Joint Strategic Analyses
JSCP	Joint Strategic Capabilities Plan
JSPS	Joint Strategic Planning System
JSR	Joint Strategy Review
MILCON	Military Construction
MNS	Mission Need Statement
MOP	Memorandum of Policy
NATO	North Atlantic Treaty Organization
NMCS	National Military Command Strategy

NMS	National Military Strategy
NSDD	National Security Decision Directive
NSR	National Security Review
NSS	National Security Strategy
NSSD	National Security Study Document
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OPLAN	Operation Plan
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
OT&E	Operations, Training & Evaluation
PA&E	Program Analysis & Evaluation
PB	President's Budget
PBD	Program Budget Decision
PDM	Program Decision Memorandum
POM	Program Objective Memorandum
PPBS	Planning, Programming, and Budgeting System
R&D	Research and Development
RDT&E	Research, Development, Test, and Evaluation
SAE	Service Acquisition Executives
SECDEF	Secretary of Defense
STRM	Strategy-to-Tasks Resource Management
SVC	Service
USCINCPAC	United States Commander-in-Chief, Pacific Command
USD(A)	Under Secretary of Defense (Acquisition)
USD(P)	Under Secretary of Defense (Policy)
USFK	United States Forces in Korea
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
VCJCS	Vice Chairman, Joint Chiefs of Staff

# 1. Introduction

The Chairman of the Joint Chiefs of Staff (CJCS) and the Joint Staff are heavily involved in a number of Department of Defense (DoD) decisionmaking processes, including crisis response, deliberate operational planning, and fiscally constrained planning. This participation has become more complex in recent years, both because the Goldwater-Nichols Act of 1986 mandated that the CJCS and the Joint Staff play a broader role in such processes and because the national security environment has grown much more complicated as it faces a multipolar world and declining defense expenditures and resources. In addition, there is no framework to identify what common types of analyses cross over between the various decision processes.

Despite this complexity, there are no detailed descriptions of how the major DoD decisionmaking processes interrelate. The several initiatives under way within particular Joint Strategic Analyses (JSA) directorates that attempt to define how the various decisionmaking processes interface are limited by both organizational perspectives and the part-time nature of the analyses.

Out of concern that the CJCS and Joint Staff carry out their decisionmaking roles effectively and receive the analytic support necessary to do so, RAND was asked to examine the Joint Staff's analytic-support requirements and its analytic environment and to recommend possible improvements. This report presents results from Task 1 of the study's two tasks.

The study addressed five main questions:

- What roles do the CJCS and the Joint Staff play in DoD decisionmaking processes, particularly those involving resource identification and allocation?
- Where do the various Planning, Programming, and Budgeting System (PPBS)-related processes that involve the Joint Staff intersect?
- What is the state of the Joint Staff's current analytic environment and what information does it require to support well-informed decisionmaking?
- What would an ideal analytic-support architecture look like?
- How easily can existing processes accommodate recommended changes?

This report addresses the first three questions; the fourth and fifth, though touched on in this analysis, will be fully addressed in Task 2.

## **Background: The Chairman's and The Joint Staff's Role**

The Goldwater-Nichols Act of 1986 (and the earlier study by the Packard Commission) recognized serious deficiencies in the DoD's decisionmaking and resource-utilization processes as well as an inordinate "service" influence in the planning and budgetary process. To increase civilian participation and decrease the power of the military chiefs, the legislation increased the roles of the Service Secretaries, the Office of the Secretary of Defense (OSD), and the Joint Staff. This has had far-reaching implications for the roles of the CJCS and the Joint Staff.

### ***The Roles and Functions of the Chairman***

Goldwater-Nichols defined new roles for the CJCS and the Under Secretary of Defense (Acquisition) (USD(A)). Both offices were entrusted with linking Commander-in-Chief (CINC) warfighting requirements to the PPBS and with using fiscally constrained planning across defense resources.

The legislation made the CJCS the key military advisor to the President and the Secretary of Defense (SECDEF), replacing the "corporate" Joint Chiefs of Staff (JCS). The legislation gave the CJCS both the authority and the resources for this new and expanded role. The CJCS's and CINCs' roles in the resource management area were also changed. To enhance military input to resource identification, CINC involvement was increased. The concern addressed by the changes was that operating forces did not sufficiently participate in all phases of the planning, programming, and budgeting phases. As a result of Goldwater-Nichols, CINCs' views were linked through the Integrated Priority Lists (IPLs) initiated by Deputy Secretary of Defense (DEPSECDEF) Taft in 1984, providing a mechanism by which the SECDEF could identify DoD's resource needs across theaters. The CINCs also were to participate in the Defense Review Boards (DRBs) and provide evaluations and various inputs during the planning, programming, and implementation review phases. Since 1984, CINC involvement in many of these activities has increased. The CJCS is a critical integrator of CINC requirements.

The Goldwater-Nichols legislation also established that the CJCS is the principal military advisor to the President and the SECDEF. The Chairman supervises the combatant commanders and acts as their spokesperson within the resourcing environment. This responsibility is consistent with his job to advise on the overall allocation of defense resources, including requirements, the program, and the budget.



The CJCS also develops joint doctrine. He oversees any reassessment of the military's roles and missions; at least every three years he must produce a formal analysis of the military's roles and missions.<sup>1</sup>

He provides independent advice to the SECDEF and President in a number of areas. He defines a fiscally constrained plan and military strategy linked to the President's national security policy objectives, using congressional and OSD guidance and baseline programs as input. He also considers multiple states of the world in terms of threats, technology, and resources. And, finally, he creates a plan (or plans) to define desired capabilities that appear feasible (master plans). The CJCS is also responsible for establishing an analytic framework for the President's Budget (PB) defense and congressional testimony.

The CJCS provides ongoing input to resource allocation decisions. The CJCS interacts with the SECDEF's defense planning guidance for Program Objective Memorandum (POM) preparations. He also evaluates (and may generate) broad outlines and options inherent in 15- to 20-year sets of programs and budgets. Integral to this role is the development of trade-off options/alternatives across service programs. The CJCS also fully participates in program and budget reviews.

Within this environment, the CJCS is responsible for identifying the changing threat and drawing out the implications of these changes. He recommends changes to policies, directives, and laws that affect acquisition strategy. The CJCS is also responsible for conducting joint training and education and is in charge of a number of activities that fall within the DoD environment. For instance, within the PPBS and acquisition system he does strategic planning, including constructing the fiscally constrained strategic plans, joint logistics and mobility plans, and net assessments. Within the acquisition process, and as part of the PPBS, the CJCS advises on requirements, programs, and budgets. He influences CINC priorities and conducts the program and budget assessments and recommendations. He also is supposed to set military requirements for acquisition programs.

The CJCS identifies any changes to the threat and assesses the implications of those changes on the national military strategy and defense resources. He then recommends changes to policies, directives, and laws that affect acquisition strategy.

---

<sup>1</sup>Goldwater-Nichols, Public Law 99-433, 1 October 1986.

Since the collapse of the Warsaw Pact and the Soviet Union, several new demands have been placed on the CJCS and the Joint Staff that will necessitate a rethinking of the types of analyses and analytic support tools needed to support the CJCS.

Most notable in the new environment is the shift in the PPBS from threats to capabilities, costs, and benefits. This shift will require a much greater quantification of options and choices. Another dimension of these changes is that they will require "good judgment," meaning that many of the decisions cannot be quantified but must simply rely on one's best call.

Through his initiation in March 1993 of the Bottom-Up Review<sup>2</sup> (BUR), former Secretary Les Aspin showed that resource decisions will be based on strong linkages between the national security strategy and tasks and capabilities. Although it has always been asserted by DoD that its resource choices are linked to the national security strategy, those linkages now must be explicitly shown. This is consistent with the reorientation toward funding capabilities<sup>3</sup> and not individual systems.

The analytic environment has also changed significantly. For instance, the tempo of analysis has increased dramatically. There are many demands on the CJCS and the services to provide "quick" turnaround analyses. These requests frequently stress the existing processes, which are structured to produce results based on predetermined timelines that may stretch over two or three years. Furthermore, many of the data that the Joint Staff must work with are unstructured—not part of an established process, or ad hoc.

Just as the demands for credible analysis will increase in an environment in which "quick analyses" will be the norm rather than the exception, decisions will be based on multiple factors that are not always analytically traceable. Nonetheless, analyses must *consider* all related factors—costs, capabilities, and effectiveness—prior to positing a position, even if the level of detail varies across factors.

---

<sup>2</sup>The Bottom-Up Review was a zero-based budgeting activity. It concentrated on defining DoD's needs based on regional requirements for capabilities and costs.

<sup>3</sup>Prior to 1986, capabilities were usually defined in terms of individual systems providing a service-specific capability to meet a posed threat. Capabilities now mean the bundling of interservice systems to provide the most cost-effective means to handle a posed threat. The significant change is that the Joint Staff must be able to make interservice trade-offs among various systems.

## The Joint Staff

The Joint Staff's duties are concentrated primarily on assisting the CJCS in providing independent analysis and recommendations/options to the SECDEF and the President. The goal is to provide balanced viewpoints and alternatives in the development of strategy and contingency plans.<sup>4</sup> Each of the areas identified (in the preceding pages) as the CJCS's duties must be supported by the Joint Staff. The Joint Staff must provide the required inputs to the legislatively mandated activities. These include the roles and missions analyses, the net assessments, and any issues on current and future joint operations and plans. The Joint Staff also supports the CJCS in a wide variety of analyses referred to as "quiet studies," indicating that they are often initially conducted totally within the Joint Staff.

The Joint Staff is organized into eight directorates, each supporting parts of the diverse activities of the CJCS. Figure 1 summarizes the directorates and their major functions. This discussion addresses the organizations as they existed in 1993, when the bulk of the analysis was conducted. (The demands of resource planning have resulted in some organizational changes that are still proceeding as this report is being written. Those changes and their implications will be addressed in the Task 2 research.)

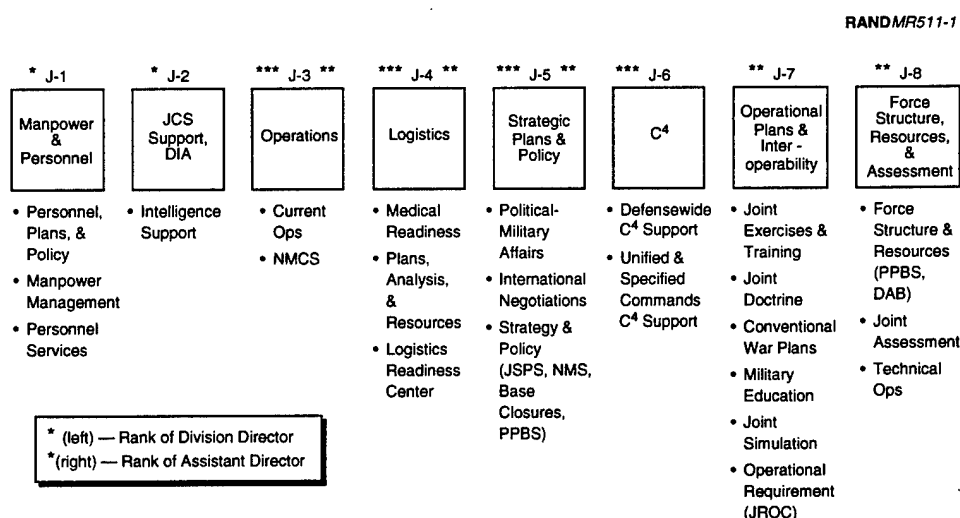


Figure 1—Organization of the Joint Staff Directorates, 1993

<sup>4</sup>The Goldwater-Nichols legislation does not specifically address the role of the Joint Staff. The role of the Joint Staff was discussed in a committee report dated July 1986; the report concluded that the Joint Staff's role was to assist the Chairman in providing independent analysis and in the areas noted above.

The activities of each of the directorates are briefly discussed next. Section 5 discusses the interactions of the directorates.

- **Manpower and Personnel (J-1)** oversees all personnel matters for the Joint Staff, including personnel policy and joint duty assignments. It is directed by a brigadier general.<sup>5</sup>
- **JCS Support, Defense Intelligence Agency (DIA) (J-2)** provides intelligence support for the CJCS. Its focus is on current operations rather than on future operational planning. It is directed by a brigadier general.
- **Operations (J-3)** handles future operational planning and requirements. It is also responsible for overseeing the national military command strategy (NMCS). The high-visibility directorate is managed by a lieutenant general whose assistant is a major general.
- **Logistics (J-4)** handles all joint operations logistics issues. It oversees medical readiness planning, provides the analysis for all logistics planning in support of current and future operations, and houses the logistics readiness center. It is directed by a lieutenant general.
- **Strategic Plans and Policy (J-5)** is responsible for all political military affairs assessments that relate to military strategy and planning. It is responsible for the writing of the Joint Strategic Planning System (JSPS) and the National Military Strategy. The J-5 establishes, in conjunction with OSD, many of the planning factors used by the services in developing their resource programs. It is directed by a lieutenant general.
- **Command, Control, Communications, and Computer Systems (C<sup>4</sup>) (J-6)** provides defensewide C<sup>4</sup> support, including the unified and specified commands. It is directed by a lieutenant general.
- **Operational Plans and Interoperability (J-7)** is primarily responsible for the development of joint exercises and training. It also provides support for the military education and joint simulation activities. It defines all the operational requirements for the Joint Requirements Oversight Council (JROC), which it administratively supports. It is directed by a major general.
- **Force Structure, Resources, and Assessment (J-8)** provides the resource integration function. It is responsible for defining force structure issues and requirements. The organization helps to build the options and the allocation of resources in the programming and budgeting phases of the PPBS. It also

---

<sup>5</sup>All joint directorates can be headed by flag and general officers of any service. General officer titles are used here for clarity and brevity.

supports the Defense Acquisition Board (DAB) process. It is directed by a major general.

## Study Approach

The Joint Staff's analytic environment has grown increasingly complex in the 1990s. Effectively carrying out various roles supporting the CJCS requires considerable analytic support. To understand how analytic support to the Joint Staff might be improved, we first assessed the key decisionmaking processes involving the CJCS—the PPBS, the Joint Strategic Planning System and Joint Staff Review (JSPS/JSR), and the JROC/DAB process.<sup>6</sup>

The RAND team assessed how the processes interacted, their strengths and weaknesses, and the quality of the decision-support information received by the CJCS. We defined interaction as activities that involved multiple processes. For instance, the DAB process supplies information and decisions to the programming and budgeting phases of the PPBS process.

We defined quality information as data and/or the compilation of data (qualitative and quantitative) with sufficient depth and breadth to afford the CJCS the opportunity to examine an issue from multiple dimensions and make informed recommendations and decisions.

The research team conducted interviews with current and former members of the Joint Staff.<sup>7</sup> It reviewed formal and informal documentation,<sup>8</sup> including published manuals describing the purpose and structure of the decision-support processes, and internal memoranda providing information to the CJCS. The last program cycle was reviewed as a means to evaluate how the decision-support processes interacted and affected the decisionmaking processes within the framework of the PPBS.

Because the CJCS is tasked with assessing both CINC resource requirements and proposed weapons systems, we looked at the United States Forces Korea (USFK).

---

<sup>6</sup>The Packard Commission outlined the new roles of the Chairman as providing advice to the SECDEF and the President, including what processes he should influence.

<sup>7</sup>RAND conducted many interviews during Task 1, including interviewing individuals in the J-8, the J-7, and the J-5. The research team also interviewed CINC staff in Korea and at U.S. Special Operations Command (USSOCOM), members of the Army and Air Force staffs, and individuals in OSD Program Evaluation and Analysis (OSD/PA&E).

<sup>8</sup>The documentation examined included the Memoranda of Policy (MOPs 7 and 9) in conjunction with the JSPS; the PPBS-DoD Instructions and other published material; Joint Strategy Review (JSR) instructions and published evaluations, CINCs' congressional testimony and relevant legislation, and the IPLs. Internal memoranda from the military departments were reviewed when available.

The USFK objectives assessment provided an analytic vehicle for the review of how the CJCS represents CINC requirements and how those requirements are articulated from a subordinate command (USFK in peacetime) to the warfighting Commander-in-Chief, United States Pacific Command (CINCPAC).

We also assessed the CJCS's role in the two informal decisionmaking processes: the Base Force Decision Process and the BUR. These examples allowed us to evaluate the analytic demands placed on the Joint Staff (in support of the CJCS) in OSD activities that fall outside of the formal processes but ultimately affect the decisionmaking processes within the PPBS, JSPS/JSR, and the JROC/DAB.

This broad and detailed methodological approach enabled the research team to identify the types of information that the Joint Staff must deal with and how the information is used to support option building and decisionmaking. The output of the analysis will be used in Task 2 to define an analytic architecture.

Task 1 of our overall study, also called the system description, concentrated on describing the principal resource identification and allocation processes involving the Joint Staff and how they interrelate. The processes examined include the PPBS, the JSPS, the JROC, and DAB decisions. The analysis addressed how the Joint Staff supports these processes and assessed the information content of the current models and data bases used by the Joint Staff and the inter- and intra-organizational interactions and procedures. Task 2, still in progress, addresses how system deficiencies noted in Task 1 might be overcome. It calls for RAND to construct a description of needed analytic capabilities and to evaluate the recommended changes against the current baseline. The client has requested that RAND's findings include recommendations for implementing changes.

## **Organization of This Report**

The next section, Section 2, describes both the formal and informal decisionmaking processes involving the CJCS. Section 3 assesses the Joint Staff's current analytic environment and discusses the types of information needed by the CJCS (and the Joint Staff) to provide the requisite analysis. Section 4 discusses the essential attributes of an ideal analytic-support architecture tailored to the Joint Staff's needs. Section 5 examines the organizational implications of implementing an analytic-support architecture.

## 2. The Key Decisionmaking Processes

To determine the Joint Staff's analytic requirements, we studied the environment in which it operates. This section describes both the formal and informal decisionmaking processes involving the Joint Staff and summarizes our assessment of each. Prior to this analysis there was no consolidated description of what the processes did or what information the Joint Staff needed.

### The Formal Processes

The formal decisionmaking processes include the PPBS, JSPS/JSR, and the requirements generation process. The Joint Staff is a key player in the JROC/DAB.

#### *Planning, Programming, and Budgeting System<sup>1</sup>*

The PPBS is DoD's primary process for planning and managing DoD's resources. It is intended to link national security goals to specific programs. It was designed to facilitate fiscally constrained planning, programming, and budgeting in terms of complete programs (i.e., forces and systems) rather than through artificial budget categories. The goal is to determine force, system, and program costs; the PPBS is designed to elicit options and provide for an evaluation of these options in terms of costs and benefits. The output of the process, the Defense Program (DP), is the official record of major resource allocation decisions made by the SECDEF.

The PPBS is one of the SECDEF's major management tools. The system provides the SECDEF with the means to set and control the DoD's agenda. The goal is to frame issues in national rather than service terms. As a functioning, ongoing process, it is supposed to capture all important decisions affecting current and future defense budgets. The process, therefore, also includes documentation and data bases; these items are supposed to capture the rationale for all important formal decisions.

---

<sup>1</sup>This discussion is based on the work by Leslie Lewis on the PPBS and the base force decision process. See Leslie Lewis, C. Robert Roll, and John D. Mayer, *Assessing the Structure and Mix of Future Active and Reserve Forces: Assessment of Policies and Practices for Implementing the Total Force Policy*, RAND, MR-133-OSD, 1992.

The PPBS is not supposed to be linear, either during a phase or from one phase to the next. Rather than being a lock-step system, it is designed to be highly interactive. The interactions take on a number of attributes. For instance, the PPBS can be a highly formal process in which there is a close adherence to every step. Or it can be modified to collapse the different phases. In the face of current budget reductions in conjunction with changes in the national security strategy, the current DoD leadership has merged many aspects of the programming and budgeting phases.

Another dimension of the PPBS is that the structure provides a forum for both informal and formal debate of the issues and options at all levels of the DoD. To prepare for the formal debates, the decisionmakers and their staffs must interact with one another on an informal basis to share information, develop options, and even define an individual participant's strategy in the debate for resources.

The PPBS is still evolving. It has undergone many changes since its implementation in the 1960s. The most recent major change to the process was instituted with the passage of the Goldwater-Nichols legislation in 1986. The legislation attempted to strengthen the first "P" (Planning), to centralize decisionmaking in the Office of the Secretary of Defense, and to make the services responsible for execution. However, each change of administration also brings changes in the relative influence of the participants in the process.

### *The Defense Planning and Resources Board and the Executive Committee*

The Defense Planning and Resources Board (DPRB) is an integral part of the PPBS structure. It meets during each phase of the PPBS and serves as the principal formal vehicle for focusing PPBS deliberations regarding all resource planning and allocation decisions.

When former SECDEF Dick Cheney took office, his review of the then-current PPBS structure suggested that planning needed further emphasis and that streamlining was in order. This led to including the word "planning" in the Defense Resources Board's name, and to reducing DPRB membership. In addition, the SECDEF created a DoD Executive Committee (EXCOM) to act as the key senior deliberative and decisionmaking body within DoD for all major defense issues. Its membership comprises the CJCS, DEPSECDEF, Service Secretaries, USD(A), and Under Secretary of Defense for Policy (USD(P)). These deliberative bodies are the senior forums for debate regarding major defense issues and, as such, create a demand for information, options, and analysis that provide the SECDEF with information for decisionmaking. As a consequence,



whether in the planning, programming or budgeting phases, issues heard at the DPRB or EXCOM levels are strongly influenced by the SECDEF.

### *The Joint Strategic Planning System*

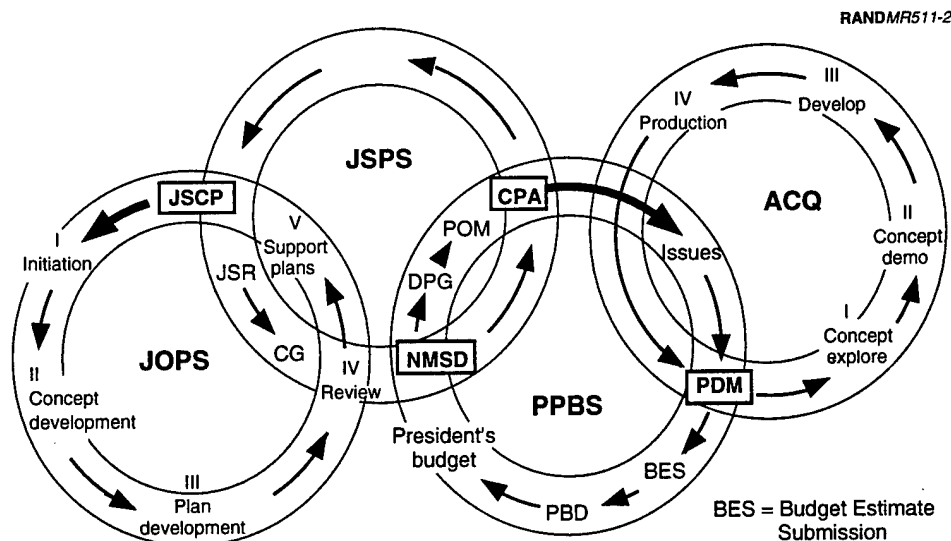
The JSPS is the formal means by which the CJCS discharges his responsibility to develop strategic plans, to provide direction to the military departments, and to interact with the PPBS. Simplistically, the SECDEF "owns" the PPBS, and the CJCS "owns" the JSPS.

The objective of the JSPS is to blend military advice with political and fiscal considerations in providing strategic direction and sound programs. By law, the CJCS does not give guidance to the military departments and agencies to build their programs. He gives *advice* to the SECDEF on what those programs should include to maximize their effectiveness and fully exploit the funds provided.

Figure 2 shows the functional processes and their interface with the PPBS.

The JSPS is composed of several processes:

- **Joint Strategy Review (JSR)** culminates in the CJCS's top-down guidance to the Joint Staff. The latter reviews (or develops) drafts of the National Military Strategy (NMS) and Joint Planning Document (JPD) for CJCS approval.



SOURCE: *The Joint Staff Officer's Guide*, 1991.

Figure 2—JSPS Interface with the PPBS

- **Review of the Joint Strategic Capabilities Plan (JSCP)**, which responds to the SECDEF's Contingency Planning Guidance (CPG) and attendant revisions to the previous JSCP, results in the CJCS's guidance for development of Operation Plans (OPLANs) by the CINCs. JSCP apportions above-the-line forces to the CINCs for their OPLAN development.
- **CJCS's assessment of component and agency programs** results in the CJCS's Program Assessment (CPA) of component and agency programs' POMs, documents crafted to respond to certain requirements as established by statute.

The JSPS relies heavily on analysis conducted both by the staff itself and by others, such as the services, for the various directorates of the Joint Staff. March 1993 changes in the JSPS have simplified the process and made it more event-driven than calendar-driven. For example, the JSR is now a continuous process, with the NMS changed and published when needed; it is also published every two years to provide an input to the development of the Defense Planning Guide (DPG).

The key component of the JSPS remains the JSR. The annual development of the JSR is labor intensive. Members of the J-5 interact with representatives from the various military departments, DoD components, and agencies who make strategic assessments to

- study the strategic environment in the mid and long term,
- posture the long-range strategic vision paper (when needed),
- apply the SECDEF policy guidance for NMS development, and
- produce an annual JSR report recommending changes to the NMS.

The JSPS is the process used to develop, coordinate, and articulate proposed CJCS positions on strategic issues. Figure 3 shows the JSPS process. It must be sufficiently flexible to respond to changes in the strategic environment and to reflect those changes. It must also ensure that it provides sound, timely, and complete information to the CJCS so he can provide decisionmaking options to the SECDEF and the President.

A number of specific functions are associated with the JSPS. The process also includes program analysis that supports the CPA. The key functions that are supported by the JSPS are the following:

- **Develop (or review) the military strategy objectives.** The objectives are derived from earlier iterations of strategy documents and from the National

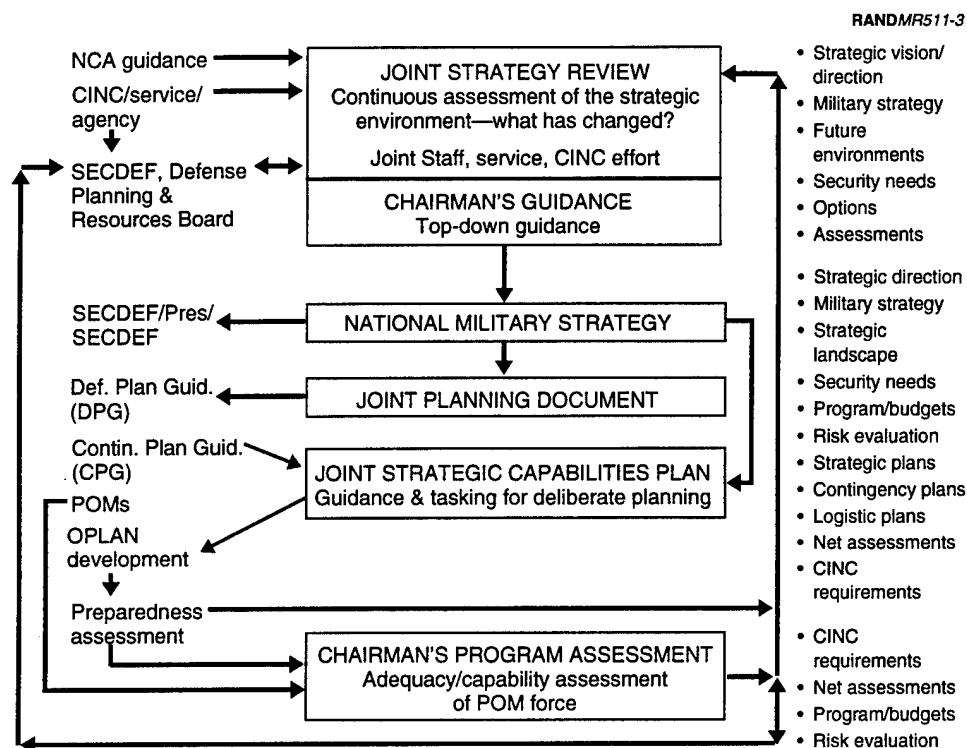


Figure 3—JSPS Overview

Security Strategy. These objectives are usually expressed at too high a level of detail to be useful for resource decisions. The J-5 oversees this analysis; the J-8 provides review and feedback.

- **Define and project (or review) the threat.** The function is performed by the DIA. The J-5 utilizes the threat material to develop the NMS and conduct the JSR. The J-8 uses the threat material to assist it in the Joint Military Net Assessment (JMNA)<sup>2</sup> and in defining the force and performance requirements.
- **Develop net assessments.** The JMNA is produced annually. The J-8 provides the force structure analysis in support of the CPA; the directorate also assesses and validates capability requirements.
- **Identify constraints.** The budget guidelines, manpower ceilings, and equipment modernization and procurement decisions shape the force

<sup>2</sup>The JMNA is a net assessment of the defense capabilities and programs of the United States and its allies relative to those of potential enemies. The JMNA is prepared by the CJCS and submitted to the SECDEF for approval. Once approved, it is submitted to Congress in conjunction with the defense budget.

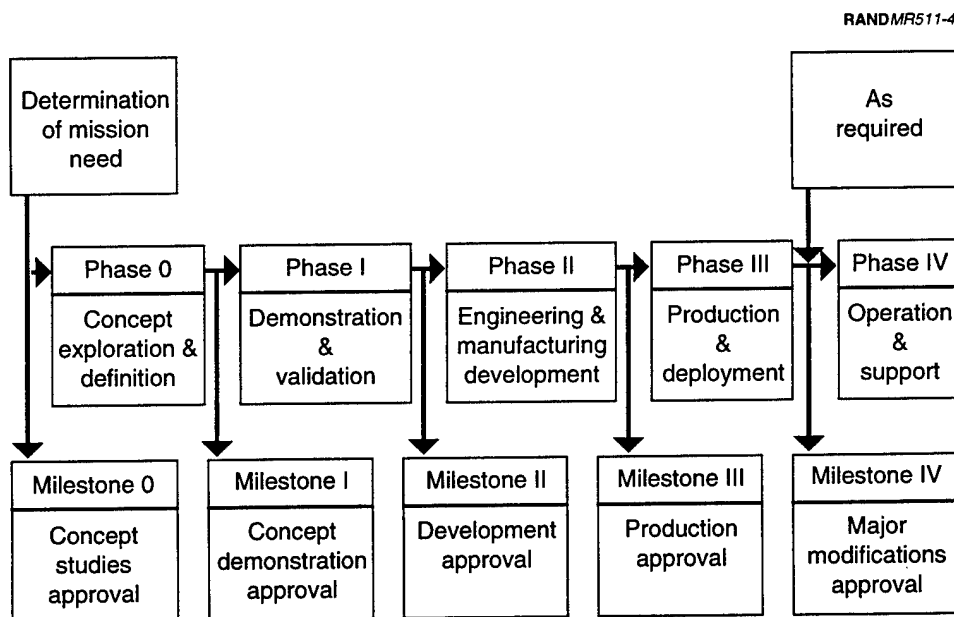
development process. The J-8 identifies the near-, mid-, and long-term program constraints that will shape the force development process beyond the program years.

- **Develop the strategy.** Strategy development is a Joint Staff (J-5 and J-8) and OSD task. The goal of the strategy development is to define what the broad strategic horizon might look like in the out years. The J-8 also makes fiscally constrained strategy recommendations to the Chairman and OSD as a way to provide program guidance to the services.
- **Develop program guidance and resource programming.** Although the CJCS does not have legislative authority to develop program guidance, as his role as the integrator of cross-service capabilities has matured he has emerged as a key participant in providing de facto program guidance and options during the programming phase. This function is performed primarily by the J-8, who works closely with the CJCS, the Assistant Secretary of Defense, Program Analysis and Evaluation (ASD(PA&E)), and the OSD (Comptroller) in developing both general fiscal guidance alternatives/options to force structure and modernization and procurement accounts.
- **Assess programs.** The CJCS and the Joint Staff (particularly the J-8) have become critical players in the evaluation of the individual service and defense agency programs. This role has evolved along with the program guidance and resource programming functions. The analysis is shaped by the identification of issues that become the subject of issue papers. The issue papers and their resolution (as influenced by the CPA) become the basis for the SECDEF's Program Decision Memoranda (PDMs), which contribute to the final determination of DoD's program submission.
- **Prepare, review, and make budget recommendations.** The CJCS is statutorily charged with ensuring that the CINCs' priorities are reflected in the program and budget submissions. This process often involves both formal and informal interactions with the services and the defense agencies. The CJCS is a member of the DPRB, where he comments on all the PBDs. He actively participates in the informal process where compromises and alternatives are developed and negotiated with the various players. Once the DoD budget is approved by Congress, the Joint Staff ensures that during budget execution the CINCs' needs continue to be addressed and that any potential shifts in the fiscal priorities consider CINC priorities.

### *The Requirements Process*

The acquisition process is divided into two distinct areas: the preparatory areas that consist of a requirements definition process and the concept exploration and definition, and the formal acquisition process that consists of the demonstration and validation phase, the deployment phase, and the operations and support phase.<sup>3</sup> Each phase is defined by milestones. Figure 4 shows the system acquisition life-cycle process.

The requirements process begins before the Milestone 0 decision. When a current capability need is not sufficiently supported by existing systems, it becomes an operational requirement.<sup>4</sup> A deficiency is identified through a mission area assessment during which the service's ability to complete an operational task is evaluated. The service applies current weapon system capabilities against assigned mission areas, thereby assessing the effectiveness of the force in supporting the combatant commands.<sup>5</sup> Deficiencies are usually



SOURCE: Przemieniecki, p. 22.

Figure 4—System Acquisition Life-Cycle Process

<sup>3</sup>J. S. Przemieniecki, *Acquisition of Defense Systems*, American Institute of Aeronautics and Astronautics, Washington, D.C., 1993, pp.20-22.

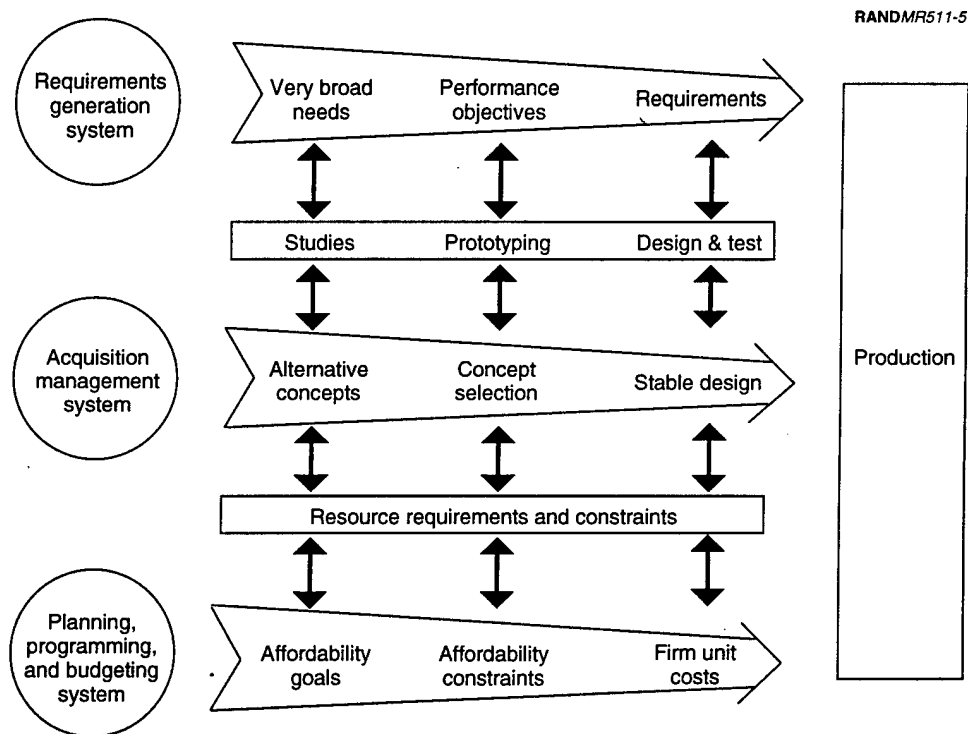
<sup>4</sup>For a broader discussion of the requirements process, see Przemieniecki, pp. 1-10.

<sup>5</sup>Przemieniecki, p. 9.

identified by a service through the preparation of a mission need statement (MNS) that defines the needs in broad, operational terms; when completed, the MNS is sent to the Joint Requirements Oversight Council (JROC), which the Joint Staff supports.<sup>6</sup>

### ***Joint Requirements Oversight Council and the Defense Acquisition Board***

The Packard Commission and the Goldwater-Nichols legislation sought fundamental changes to the organization of the Department of Defense and how it defines military requirements. This reexamination occurred from two perspectives: (1) the establishment of a system that closely links proposed military needs and capabilities to the national security agenda and objectives established by the President, and (2) the improvement of the requirements generation and acquisition process system—the system for defining military materiel needs and translating those needs into weapons systems. The JROC/DAB process is shown in Figure 5.



**Figure 5—JROC/DAB Process**

<sup>6</sup>In July 1994, JROC responsibilities were moved from the J-7 to the J-8; the process is currently undergoing revision.

The JROC was established in 1988. It is chaired by the Vice CJCS; its members are the Vice Chiefs of Staff of the services. The forerunner of the current JROC was the Joint Requirements and Management Board (JRMB).

The JROC charter, revised in 1993, specifies that the JROC is responsible to the CJCS, who offers options on all outstanding issues. The chairman of the JROC is the principal military advisor to the CJCS for military requirements. Consistent, however, with the spirit of Goldwater-Nichols that debate and options are key to good defense decisionmaking, the JROC charter notes that the Vice Chairman, Joint Chiefs of Staff (VCJCS), must forward any dissenting advice or opinions to the CJCS along with his own recommendations.

The DoD Directive 5000 series of publications establishes the specific guidelines for the requirements generation system—the MNS and the operational requirements document (ORD). Following the 1986 reforms, OSD, the CJCS, and the military departments agreed that the 5000 series would establish a consistent set of policies and procedures for both the requirements generation and the acquisition management processes.

The guidelines for the requirements generation system policies and procedures are defined in CJCS Memorandum of Policy 77, issued in September 1992. It defines the policies and procedures that enable the CJCS to carry out his defense acquisition responsibilities as defined by the Goldwater-Nichols legislation. For instance, the MOP assigns oversight for the requirements generation system to the VCJCS. He is assisted by the JROC and members of the Joint Staff (primarily the J-7, who is the JROC Executive Secretary). Although the MOP establishes standard policies and procedures for developing, reviewing, validating, and approving MNSs and operational requirements documents as defined by the new 5000 series, it does not address the format or contents of the documents.

The overall management construct assumes many things. It assumes that the processes supporting the key participants in both the requirements generation system and the acquisition system (the users and the developers) can produce timely, objective assessments and make recommendations on all the issues being addressed. This in itself is a formidable task because the most recent list of programs requiring DAB review and JROC input contains over 100 major programs, including such complex systems as the DDG-51 destroyer and the LX amphibious assault ship, the F/A-18 E/F and F-22 aircraft, and the Apache and Comanche helicopters. The sheer number of programs alone places a significant demand on the staff and the resident analytic-support activities. The problem is exacerbated by the diversity and complexity of the systems being addressed,

particularly in an environment in which cost, schedule, and performance must be well understood.

The current JROC is designed to support the CJCS and the SECDEF in two ways: (1) to assist the CJCS in carrying out his responsibility to assess military requirements for defense acquisition programs, and (2) to assist the CJCS in articulating the unified and specified CINCs' operational requirements. These activities require that the JROC review all warfighting deficiencies that could necessitate major defense acquisition programs and verify that such deficiencies cannot be satisfied by nonmateriel means (changes in doctrine, tactics, training, and organization). In addition, the body must review and approve the military need for all potential major defense acquisition programs and validate their performance objectives and thresholds in the acquisition program baseline prior to any consideration by the DAB. Finally, it evaluates programs according to the resource allocation guidelines established by the SECDEF.

The JROC and DAB are designed to interact formally and informally with the PPBS process. The reviews of proposed JROC presentations are chaired by the JROC secretary and are attended by representatives from the Office of the Deputy Director, Force Structure and Resources (DDFSR), J-8. The DDFSAR also attends the JROC meetings and is the Joint Staff representative on the DAB committees. This individual also develops recommendations for fiscally constrained future force structures and is the Joint Staff focal point for the PPBS programming and budgeting phases. Thus, the DDFSAR is the de facto focal point or integrator of the three resource decisionmaking processes.

The JROC is responsible for validating all potential Acquisition Category 1 (ACAT 1) MNSs, or those programs requiring an eventual total research, development, test, and evaluation (RDT&E) expenditure of more than \$300 million in FY1990 constant dollars or an eventual total procurement expenditure of \$1.8 billion in FY1990 constant dollars. In this role it carries out a number of responsibilities:

- **JROC input for Milestone I DAB reviews.** The committee reviews the results of the concept exploration and definition studies and makes the appropriate recommendations on alternatives and cost-performance trade-offs to the USD(A) prior to a Milestone I (New Start) decision review.
- **Validation of key performance parameters at subsequent milestone DAB reviews.** Once a major defense acquisition program has been established at Milestone I, the JROC is responsible for validating performance objectives and thresholds prior to subsequent DAB milestone reviews.



- **Development of relative prioritization assessments.** The JROC does not address affordability and funding issues; these issues are left to the DAB and the PPBS process. The military departments oversee numerous acquisition programs and resources that are not addressed by the JROC, but are addressed by the CJCS and the VCJCS during the PPBS process.

The term "defense acquisition" has a variety of meanings. For example, the term is used to describe the management approach for acquiring systems and materiel defined in DoD Directive 5000.1 and its companion documents, DoD Instruction 5000.2 and DoD 5000.2-M. The term is also associated with the full range of responsibilities and functions of the USD(A) identified in DoD Directive 5134.1. And finally, some have recently used the term to describe the need for a new, revised defense acquisition approach that addresses three primary and interrelated areas—science and technology, weapon systems development and production, and the defense industrial base.

DoD's process for the management of defense acquisition is derived from the Packard Commission's recommendations.<sup>7</sup> The USD(A) and the DAB are the main players in defining and directing acquisition management. Both have specific responsibilities that are designed to link DoD's requirements generation and acquisition management to the PPBS processes.

The USD(A) is responsible for overseeing the DoD acquisition system, research and development, test and evaluation, production logistics, military construction, and procurement. It establishes acquisition policy and defines the guidelines and procedures necessary for directing and overseeing the process. The USD(A) oversees the DAB and develops acquisition plans, strategies, guidance, and assessments, including the affordability and investment analyses in support of the acquisition milestone reviews and the PPBS phases.

The DAB, chaired by the USD(A), is DoD's major acquisition forum. Although other individuals may attend on a case-by-case basis, permanent membership is limited to:

- VCJCS
- Director, Defense Research and Engineering (DDR&E)
- Service acquisition executives (SAEs) from the military departments
- Assistant Secretary of Defense, Program Analysis and Evaluation

---

<sup>7</sup>David Packard, *A Quest for Excellence: Final Report to the President, President's Blue Ribbon Commission on Defense Management*, June 1986.

- Comptroller, DoD
- Director, Operational Test and Evaluation
- Chair of the cognizant DAB committee

The DAB's membership is structured so that its members are linked formally and informally to the DoD's key decisionmaking processes. For instance, the VCJCS is the chairperson of the JROC and is responsible for overseeing the requirements generation system. The ASD(PA&E) and the OSD Comptroller are pivotal players in the programming and budgeting phases, respectively.

The DAB is responsible for recommending whether a system/capability should or should not be acquired. This is known as the "what to buy" issue. The USD(A) is responsible for determining the overall management of the defense acquisition, or the "how to buy" issue. Theoretically, the DAB is tightly linked to the requirements generations process; officially, it is supposed to review all the JROC-approved MNSs for the Milestone 0 DAB review and determine the concept exploration/definition study efforts. Also, the DAB is supposed to review at least once each year new mission needs approved by the JROC for possible Milestone 0 approval. The rigor by which this is done is problematic, given that informal negotiations often occur between the military departments and the various DAB participants prior to formal review.

The DAB also oversees Milestone I through V decision point reviews and program reviews of major defense acquisition programs subject to DAB review under DoD Directive 5000.1. The reviews are intended to ensure that every program is ready to proceed into more advanced stages of development or production prior to receiving milestone approval and that proposed program plans for subsequent stages are consistent with acquisition policy and procedure.

Three committees support the DAB—the Strategic Systems, Tactical Systems, and Command, Control, Communication, and Intelligence System committees. Membership on these committees tends to mirror that of the DAB. The Joint Staff plays a key role within the committees: The J-7 represents the VCJCS at Milestone 0 reviews. For all other milestones, the J-8 represents the Joint Staff perspective.

Again, it is critical that the analytical capabilities of the Joint Staff are sufficiently responsive to these requirements and include the ability to assess operational performance parameters and the potential costs associated with the system. The process gives the VCJCS three key responsibilities: chairperson of the JROC, vice chair of the DAB, and key participant in the formal and informal PPBS processes.

## Informal Decisionmaking Processes

The interactions among the various staff elements and managers within DoD form an important element in defining the requirements for analytic support. Many of the interactions are to discuss options, to provide responses to questions, or to attempt to negotiate an agreement on a particular issue prior to its emergence in a formal meeting. These interactions occur at all levels. The "informal" workings of DoD are as critical to the decisionmaking process as are the "formal" processes.

The research team observed that, increasingly, staffs are asked to provide analytic support for decisions that fall outside the formal processes. The activities are "extracurricular" even though their output may link to the PPBS and the JROC/DAB and impact the JSPS/JSR. The decisions negotiated during these "informal" debates are often formalized in the PPBS and in acquisition decisionmaking. Two recent cases in point are the Base Force decision process between 1989 and 1990, and, more recently, the Bottom-Up Review. Both demonstrate how changes in the national security environment have impacted DoD resource planning, allocation, and management.

### *The Base Force Decision Process*

The Base Force decision process encompassed much more than reduction of the force structure and redefinition of the force mix. It was a fundamental rethinking of force policy and the process used to define DoD resources. These changes were reflected in the DoD FY1992-1993 budget submission and the FY1992-1997 program associated with that budget submission.

The period in which the Base Force decision process took place was one of the most turbulent in recent times. It was during this period that the Warsaw Pact threat collapsed, dramatic change occurred in Eastern Europe and the Soviet Union, Operation Just Cause and Desert Shield/Desert Storm unfolded, and DoD's budget declined. Although not all of these events influenced the process equally, they all affected it in some way. Despite these complexities, the Base Force decision activities seemed to follow a sound analytic process. These decisions were largely made within the context of the PPBS.

Antecedents to the Base Force work began in the Joint Staff, during Admiral William Crowe's tenure. Soon after the appointment of Colin Powell as CJCS, General Powell and the SECDEF, Dick Cheney, concluded that the changes in the strategic environment necessitated a "whole new way of thinking about how defense resources [were] defined and allocated." The concept soon evolved to

mean that the Base Force must be derived from the NMSs and that force structure and mix would be shaped by the operational demands across a spectrum of environments. The force, therefore, had to have sufficient flexibility to adapt to changes in the environment while preserving a set of core capabilities.

The resourcing and analysis of the Base Force concept was imbedded in the PPBS. The PPBS continued to define a sequence of events, but in a flexible way. In addition, although the allocation of resources across mission/operation areas would be proposed by the services in response to the SECDEF's planning and fiscal guidance, proposed programs would not be reviewed by OSD and the Joint Staff. The CJCS, with the assistance of his staff, would provide the horizontal integration. It is our opinion that we thus saw, for the first time, a complete integration of the CJCS and the Joint Staff into DoD's resource allocation process as envisioned by the Goldwater-Nichols legislation.

As the program-building process got under way, the services were aware of the Base Force work. They knew quite early in the process that central to the FY1992-1994 program was the whole issue of force structure and mix. The uncertainty of the strategic and fiscal environments precipitated a great deal of debate among all key participants in the process.

Of the three phases of the PPBS, the planning phase was the most challenging because it had to respond quickly to world changes of great magnitude. It was shaped by the redefinition of the strategic environment and the fiscal uncertainty that surrounded the emerging program. The debate during this period included assessment of risk, mobilization, deployment capability, readiness, and cost and cost-effectiveness issues regarding force structure/mix options. Participants in the debate argued over what Reserve and Guard issues should be included in cost-effectiveness analyses. Some argued that they should focus only on direct costs. Others noted that they must include both direct and indirect costs associated with force structure. The cost issues were critical to the debate, for they ultimately shaped how forces would be distributed among the various military missions and regions.

The programming phase saw further debate and the application of guidelines for fiscal restraint. By the end of the programming phase, DoD leadership had implemented some elements of the Base Force.

In the budgeting phase, the options that were raised and debated among the DoD leadership focused solely on the implementation of the Base Force and how to stay within the fiscal limits set by the Budget Summit. On November 29, 1990, the SECDEF directed in an EXCOM that the Base Force be implemented.

The military departments responded differently to the Base Force process. The Air Force was little affected by the Base Force decision; it implemented its POM with only minor modifications. The Army and the Navy were the most affected, and each employed a different strategy by which to deal with force structure reductions. Based on early analysis and concerns regarding a reemergent Soviet threat, the Army took a position to support a force structure that met this threat, and would reduce further only if externally directed to do so. Throughout the program cycle it supported its original POM, until it was finally externally directed to make additional force structure reductions. The Navy, on the other hand, was reluctant to accept a reduced threat, but negotiated its force structure and mix throughout the programming and budgeting phase.

The debate among all the participants influenced the final composition of the Base Force. There were changes to both the force structure and mix in response to recommendations made by the military departments.

Despite the challenges of a dynamic environment, the Base Force decision process took a remarkably successful course. Options were evaluated from the appropriate perspective of costs, risks, and capabilities. Participation in the evaluation was widespread. Issues were pulled into the PPBS process as they should have been. Total force policy could be said to have been implemented in the "practice" of the Base Force decision process.

### ***Bottom-Up Review***

The BUR also reflects the use of the CJCS and his staff in processes that were not formally defined within the Goldwater-Nichols legislation. This initiative was begun by SECDEF Les Aspin as part of redefining defense requirements within the context of the "new strategic environment." The seven-month initiative, begun in January 1993, was declared to be not fiscally driven, but rather a comprehensive assessment of U.S. defense needs in the post-Soviet era.<sup>8</sup> It attempted to employ a detailed analysis based on broad planning assumptions. The steps included the following:

- Assessing U.S. defense requirements in the post-Cold War world; emphasis was given to new dangers and the opportunities emerging from the new environment.
- Devising a new defense strategy to protect and advance American interests in the new environment.

---

<sup>8</sup>*Bottom-Up Review* (White Paper).

- Constructing building blocks of forces to implement the strategy.
- Combining these force building blocks to produce options for an overall force structure.
- Complementing the force structure with weapons acquisition programs to modernize American forces, defense foundations to sustain them, and policy initiatives to address new dangers and take advantage of new opportunities.<sup>9</sup>

As noted in the BUR, the assessments were characterized by "close collaboration" between the civilian staff of the OSD, the military departments, Joint and service staffs, and headquarters staffs of the unified commanders.

The Joint Staff's particular contribution was in the projected force structure and future acquisition/investment strategy. This analysis is being used in the defense of the BUR recommendations:

- Accelerated procurement of advanced munitions so that early arriving forces can stop the enemy's advance more quickly and U.S. aircraft can more effectively attack a wide range of targets while reducing the risk of attrition.
- Continued development of a new generation of battlefield surveillance systems to ensure that the enemy can be quickly located, tracked, and targeted.
- Increased readiness of 15 combat brigades and selected combat support and combat service support units of the Army's reserve component.<sup>10</sup>

Recently, members of Congress and OSD have requested that the J-8 show the analysis that supports the BUR findings. Although much of the analysis can be audited, certain elements cannot be replicated because the analytic framework was not consistent. As the recommendations in the BUR become more closely scrutinized, their analytic underpinnings are being increasingly questioned.

The BUR analysis is another example of analytic demands being placed on the Joint Staff that fall outside of the formal processes it performs but that impact those processes. The BUR findings have long-term implications for both the options raised and debated throughout the PPBS process and the JSPS/JSR and the acquisition process.

---

<sup>9</sup>Les Aspin, Secretary of Defense, *Annual Report to the President and the Congress*, 1994, pp. 3-4.

<sup>10</sup>*Annual Report*, p. 5.

## Observations About the Interrelationships of the Decisionmaking Processes

Our assessment yielded a number of insights about the various processes of Joint Staff decisionmaking. The most important is that though many of these interfaces are formally defined, frequently the processes are not synchronized.

### *Informal Processes*

Informal processes have a large impact on decisionmaking. Significantly, the issues that fall outside the formal PPBS process are having the greatest effect on both near- and long-term decisionmaking. They are determining the strategic and fiscal framework for making resource decisions based on military objectives, force end-strength and structure, modernization objectives, and fiscal constraints. This was true in the Base Force decision process, in which the options developed by the Joint Staff were used to provide the numbers and fiscal guidance in the budgeting phase of the PPBS.

### *Formal Processes*

Our assessment of the last budget cycle and observations of the current program-build indicate that issues assessed outside of the formal PPBS process are subsequently used to shape decisions within the PPBS. The PPBS sets a schedule and defines a structure for all DoD resource decisions. It attempts to link strategies and budgets within a fiscally constrained planning environment. The PPBS therefore provides a forum for debating the issues and options at all DoD levels. Within the PPBS there is a variety of semi-structured and unstructured activities.

The JSPS/JSR was not designed to be in synchronization with the PPBS; it is the least timely of the formal processes.<sup>11</sup> Although the recent recommended changes in the process were an attempt to make it more responsive to the changing environment, the JSPS/JSR continues to be highly linear, dependent on receiving inputs according to lockstep analytic processes. It does not easily accommodate deviations from its formal structure. For instance, JSR did not play a significant role in the development of the 1993–1994 DPG. Rather, the JSR was updated to reflect changes in the national military strategy so that it could

---

<sup>11</sup>A number of individuals on the Joint Staff, the military departments, and OSD complained that the JSPS/JSR was irrelevant to providing them the analytic assistance that they needed during the BUR and DPG exercises. Interviews, June–July 1993 and October 1993–January 1994.

influence the next DPG. The process devotes considerable time to coordination and consistency, to the possible exclusion of the consideration of alternatives or real-world changes to the planning guidance. The structure tends to inhibit the JSPS/JSR in providing a "quick response" planning function, which is imperative in the current environment. The JSPS is oriented toward both capabilities and operational-objectives planning; unfortunately, it often mixes up the two goals. Capabilities are the types of military support that are needed to support a mission plan, in contrast to an operational objective, which is a goal that is supported by a set of capabilities grouped together to perform a specific mission.

We also found that many individuals involved in the JSPS/JSR processes are not sufficiently familiar with the PPBS process to understand how the two processes interact. Therefore, the output of the JSPS/JSR is not always tailored to influence the programming phase of the PPBS. This lack of interaction contributes to a major shortcoming in the PPBS: Strategic planning is often disconnected from resource decision planning. The separation between strategic planning and resource decision planning is exacerbated by the organizational stovepipes within the Joint Staff. Strategic planning takes place in the J-5 and resource integration and allocation takes place primarily within the J-8.

The JROC/DAB processes are still evolving. The initial JROC concept emphasized individual systems fulfilling capabilities shortfalls. Such system-specific solutions made it difficult to define the cross-service capabilities demanded by the Goldwater-Nichols legislation, and later, by the DoD leadership.<sup>12</sup> The JROC/DAB needs to be reoriented toward its original concept of evaluating service recommendations against the capabilities identified by the Joint Staff as critical to support joint operational requirements. This reorientation could facilitate the integration of the "what to buy" issue into the overall PPBS decision framework. Certainly the recent BUR activities supported a stronger linkage between the PPBS and the JROC/DAB. However, the reorientation of the JROC/DAB toward assessing service proposals against a set of joint operational shortcomings would be culturally difficult to accomplish. This concept cuts at the military departments' ability to define and set their acquisition agendas. The JROC was designed to be neither fiscally constrained nor part of the PPBS process. Its purpose is to evaluate service capability proposals against identified joint operational shortfalls. Ideally, the DAB provides the fiscal and design guidelines for the system through each phase of its

---

<sup>12</sup>The decline in defense expenditures, coupled with the collapse of the Soviet Union, pushed to the forefront of the acquisition arena the need for multipurpose platforms that could perform in a number of mission areas. This is an instance where fiscal and strategic realities are contributing to the enforcement of the spirit of Goldwater-Nichols.



acquisition. The DAB milestones, however, are not in synchronization with either the PPBS programming phase or the budgeting phase. This major process shortcoming has been repeatedly raised among the DoD leadership.

The project team concluded that although the PPBS, JSPS/JSR, and JROC/DAB processes are interrelated, they often function as separate entities. The lack of synchronization gives the illusion that each process must generate different types of information and requires different analytic support.

The next section addresses types of information generated and needed in the formal and informal processes.

### 3. Analytic Environment and Information Needs

This section discusses the Joint Staff's analytic environment and the kinds of information required to support CJCS decisionmaking. We found that the formal and informal processes (as defined in the previous section) created different types of information demands.

#### Changes in the Environment

The Joint Staff analytic environment has changed significantly in the 1990s. While the Joint Staff continues to produce the documentation associated with the PPBS, JSPS/JSR, and JROC/DAB, it also handles analytic demands in support of OSD resource decisionmaking that fall outside of "formal" processes but influence the debates within those processes, especially the PPBS. Many DoD decisions rely heavily on the direct involvement of the CJCS in shaping and conducting the analysis. Certainly the Base Force decision process and the BUR analysis reflect these trends.

Furthermore, the tempo of analysis has increased dramatically. The CJCS and the services are frequently expected to provide "quick turnaround" analyses. These requests often stress existing processes, which are structured to produce results based on predetermined timelines that may stretch over two to three years. OSD and Joint Staff members are unanimous in their opinion that the demands for credible "quick turnaround" analyses will increase as the strategic and fiscal environments become more uncertain. These analyses are more demanding because they must consider many related factors, such as costs, capabilities, and effectiveness, prior to positing a position.

To capture the complexity of the environment, we gamed the Joint Staff roles and interactions in two ways. First, we defined the roles and interactions of the various players in the PPBS cycle according to how they are specified in DoD documents.<sup>1</sup> Figure 6 shows the results of this analysis. As expected, it revealed a highly structured linear process that is tightly linked through a series of

---

<sup>1</sup>*Army Command and Management: Theory and Practice*, U.S. Army War College, 1992-1993; and Commander William C. Keller, *The Defense Resource Allocation Process*, U.S. Naval War College, Newport, Rhode Island, June 1990 revision.

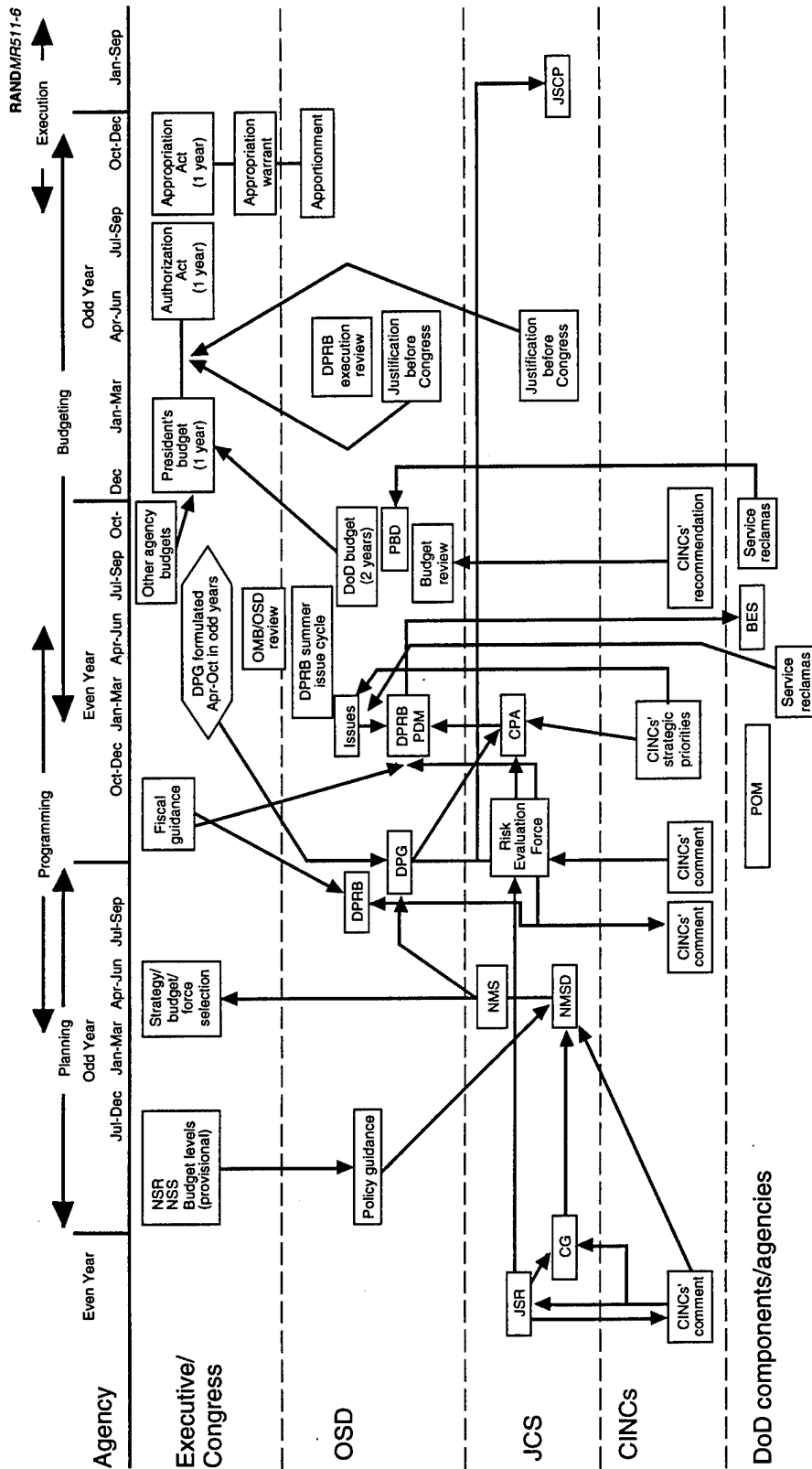


Figure 6—DoD Resource Decision Framework Specified in DoD Documents

position and issue papers, program and budget reviews, and congressional testimony. The complexity of the diagram shows the number of interactions that occur even in an "ideal" process.

We also reconstructed the last program cycle (FY1992–1994) based on interviews and official and unofficial documentation.<sup>2</sup> Figure 7 shows a much more interactive process than is revealed in the official documentation. The CJCS is involved in all phases of the PPBS in a highly interactive manner. In addition, numerous issue papers necessitate the CJCS to actively participate in all PPBS phases. The papers cover a broad range of force development, budget, and risk assessment issues.

## Resource Allocation Functions that Require Support

We then turned our attention to the types of data and information needed by the Joint Staff for its analytic activities.

Winnefeld and Kugler, in their unpublished examination of the JSPS/JSR–PPBS interface, defined 12 functions that are inherent in resource allocation. The 12 functions in turn require analytic support to be performed:

1. **Develop (or review) military strategy objectives.** The lack of systematic analysis may result in statements of objectives appearing as catalogs and too general.
2. **Define and project (or review) the threat.** The DIA develops the threat; it is the domain of intelligence officers, not futurists. The analysis tends to focus on the near and mid terms, with little discussion of the long term (beyond the Future Years Defense Plan [FYDP] years). Consequently, past threat estimates have had little utility for developing long-term strategies or acquiring systems that may not enter service until ten years hence and then may have a 30-year service life.
3. **Develop net assessments.** Military net assessments are contained in the JMNA, which is prepared annually as required by law.

---

<sup>2</sup>The FY1994–1999 program cycle is under way and is using the results of the BUR analysis. Because our analysis was completed prior to the FY1994–1999 program build, we were unable to capture the dynamics of this environment. However, interviews indicate that the current program build is demanding even greater Joint Staff resources. Again, this is an observation, not an analytic finding.

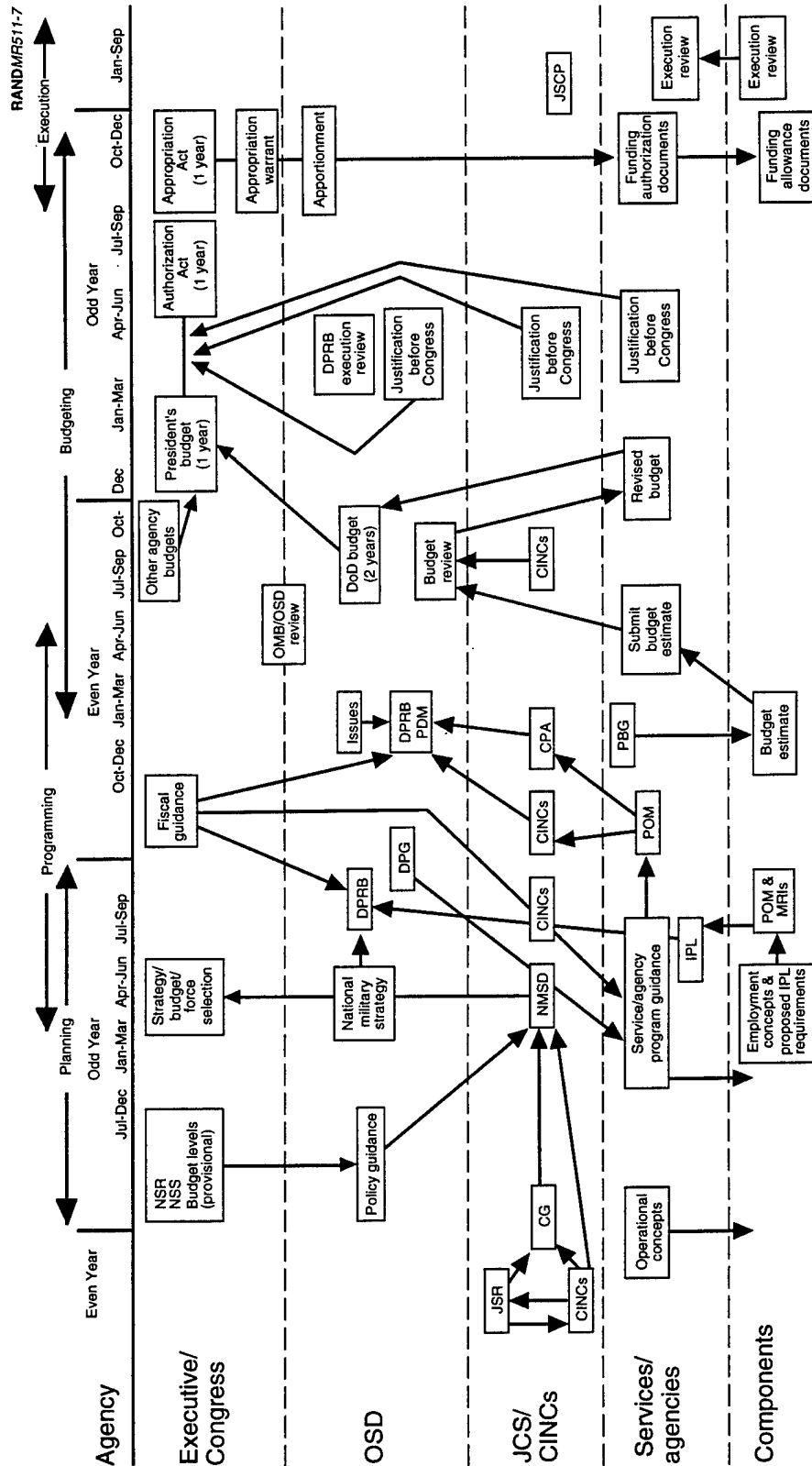


Figure 7—DoD Resource Framework: PPBS Environment from Last Cycle

4. **Identify constraints.** The constraints shape the fiscal ceilings, manpower availability, congressional attitudes on the form of U.S. military power and the realities of the global security environment, and public acceptance.
5. **Develop the strategy.** In recent years, the Joint Staff's job centered on packaging, marketing, and refining strategy. The Regional Strategy is more a function of the CJCS's personal input and the Goldwater-Nichols legislation that put more responsibility on the regional CINCs than it is a product of the Joint Staff's formal strategy development process.
6. **Develop programming guidance.** Providing programming guidance is a function of the SECDEF, not the CJCS. However, the CJCS does have a statutory role in advising the SECDEF on departmental planning guidance. This advice takes the form of the NMS. The JSR is scheduled to be responsive to the needs of the SECDEF in developing planning guidance. The issues that arise in the CJCS input in the performance of this function concern whether the NMS developed by the CJCS is in a marketable form, whether it is sufficiently complete, and whether it adequately recognizes political (including fiscal) constraints.
7. **Program resources.** The Joint Staff's function at this point consists more of monitoring and providing advice consistent with the CJCS positions than of program formulation itself. It is not, however, inconceivable that in the future the CJCS will take a more active role in program development—perhaps extending to developing force-level packages and having the components and agencies fill out the needed support programs and price the packages that result.
8. **Assess programs.** This is a statutory function of the CJCS. Part of the program assessment is the identification of issues that in turn become the subject of issue papers. Recent revisions to MOP 7 indicate that the CPA will be based on the NMS and the degree to which component and agency programs conform to the priorities established in strategy plans and the requirements of the unified and specified commands. The development of issue papers also requires an interplay among strategy development, application of constraints (not just dollars), and the development of programming guidance.
9. **Prepare budgets.** Budgeting for the DoD components and agencies is not a Joint Staff function. The CJCS is very interested in the degree to which component and agency budgets reflect his and the CINCs' priorities. Because the budget preparation phase and the program decision phase of the PPBS overlap, the CJCS's participation in the DPRB can have a significant impact on component and agency budgets.

10. **Review and decide on budgets.** The CJCS plays a major role in the budget review. Major program changes are the subject of the DPRB. The CJCS also participates in the justification of the budget to Congress through its annual statements to that body.
11. **Budget execution.** The CJCS becomes involved in the budget execution phase only if program priorities shift during execution and the changed priorities affect the CINCs.
12. **Acquire Systems.** The Joint Staff's role in the support of the JROC is critical. As the fiscal environment becomes more uncertain, the staff's role in assessing the impact of these changes will probably grow.

## The Chairman's Analytic Support Requirements

In support of the 12 formal functions, several analytic-support requirements were identified as essential to providing the CJCS with sufficient analysis to support him in his various roles.

- A framework for defining national and military objectives in at least four dimensions—by region, over time, by priorities, and by level of detail. The framework provides a point of departure for describing the political and military objectives.
- A determination of enemy force levels, modernization, readiness, and sustainability. There is also a need to assess enemy political goals, military strategy, doctrine, campaign plans, and tactics, and, finally, the timing of mobilization, reinforcement, buildup, and attack.
- A political-military framework for gauging overseas presence, missions, and requirements in such areas as Europe, Asia, and the Persian Gulf.
- A framework for assessing the implications of force levels that fall short of meeting requirements and for determining the proper mix of combat and support forces at less-than-desired levels.
- Analytic capability that specifies time-phased reinforcement requirements for offsetting forward-presence deficiencies and for meeting subsequent buildup needs through power projection.
- Analytic capability that addresses programmatic options for meeting reinforcement requirements through power projection in a fashion that maximizes effectiveness and minimizes costs.

The types of information supported in the above framework are cited in Figure 8 as structured information. The upper portion of the figure shows the decision

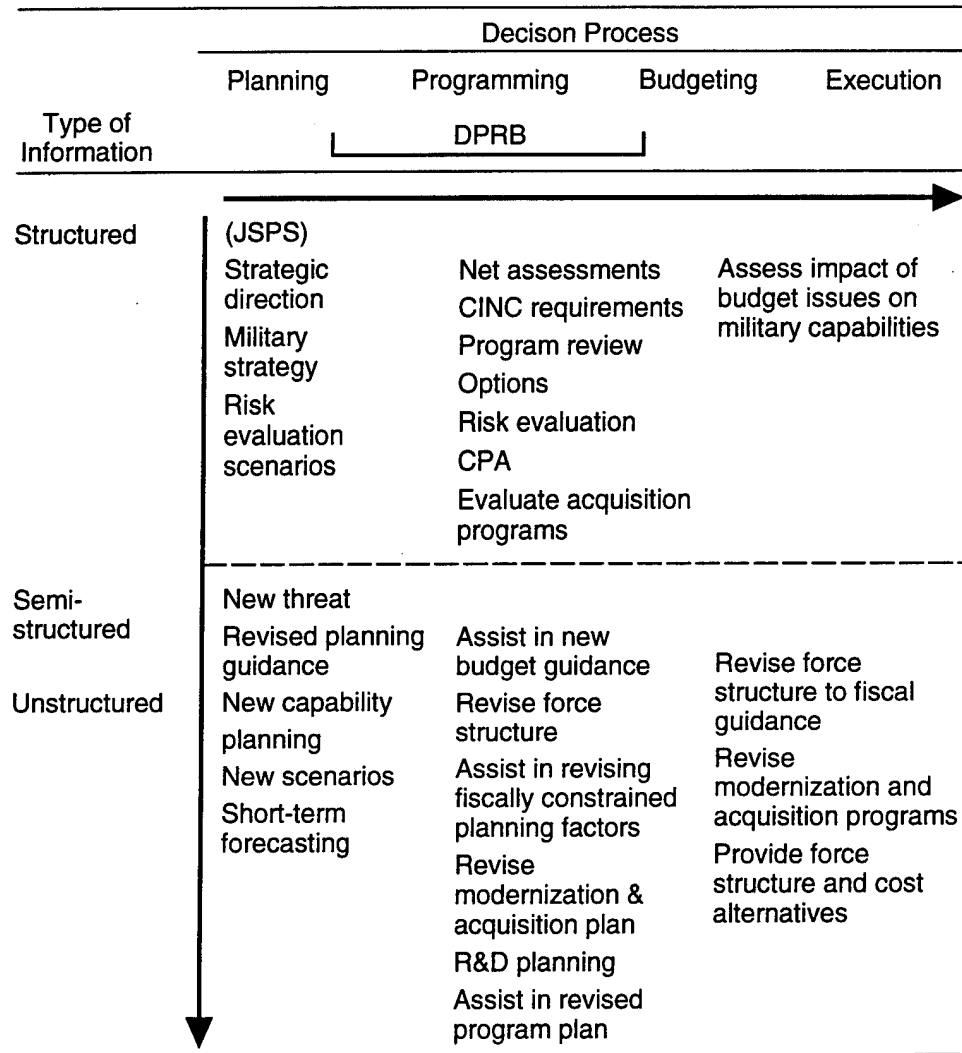


Figure 8—Information Needed to Support the CJCS

process through each of the PPBS phases.<sup>3</sup> By structured information, we mean information required by the formal processes that involve the CJCS. These demands are clearly articulated and understood by all the participants. The information is based in large part on previously used data that may have been slightly modified to accommodate modest changes. Modifications include any shifts in national military strategy, planning guidance, budgets, and the like. Often the changes simply need to be incorporated into a document.

<sup>3</sup>The warfighting element of the CJCS's job is indirectly linked to resource decisionmaking.



## Semi-Structured and Unstructured Information

As noted earlier, the Joint Staff is increasingly asked to perform or support analyses outside the formal processes. These activities often require information different from that needed in the formal processes. Concurrently, as the fiscal and strategic environments change, new types information are being requested within the formal processes. For instance, there is an increasing demand for short-term forecasts and force structure linkage to fiscal guidance.

We call these types of information semi-structured and unstructured. By semi-structured we mean that some of the information is provided through the formal processes, or that there is sufficient knowledge about the topic that the Joint Staff can provide credible information.

Unstructured information demands are the least fleshed out and the most complex. The demanded data

- are often not linked to a formal process, or
- reflect a major shift in the defense environment, or
- are part of a short-term, "quick turnaround" analysis being requested of the CJCS by the executive DoD leadership. Our assessment revealed that part of the complexity of the current environment resulted from the Joint Staff being asked to perform more quick-response analyses that require semi-structured and unstructured data.<sup>4</sup>

---

<sup>4</sup>Attempts to quantify the amount of work done by various directorates outside the formal process were not successful. The demands on the various directorates shift between the known processes and the quick-response efforts. Our informal surveys further revealed that some directorates have staffs that handle just the formal processes, leaving other staff elements to handle the quick-response demands. Often the staffs did not recognize the commonality of the data.

## 4. An Analytic-Support Structure

This section defines an ideal analytic-support architecture for the CJCS and the Joint Staff. We discuss the functions such an architecture must perform and describe a possible structure for carrying out those functions.

### Elements of an Analytic-Support Architecture

An analytic architecture has to accommodate both the formal and informal analytic requirements placed on the Joint Staff and all the types of data that are demanded. Figure 9 illustrates this concept. The analytic architecture must ensure that as much information as possible is structured to give the Joint Staff sufficient capability to work in any domain.

Any decisionmaking structure must be understood and accepted by the CINCs, services, and OSD. It must allow all the players to participate in the process, while reflecting the CJCS's independent advice to the SECDEF and the President. The decisionmaking process needs to be linked so as to provide a common framework across all the resource decision processes in a way that is understood by all the players. The architecture must accommodate ad hoc requests for analyses.

Given the diversity of analytic activities within the Joint Staff, any analytic-support framework must present a structured and coherent view of all the elements that go into determining military capabilities (i.e., strategy, weapon systems, force structure, and so forth.) Key criteria are to

- show a hierarchy of linkages from national security strategy and national military strategy down to specific DoD programs,
- accommodate and help structure the inputs, the analytic processes, and, ultimately, the outputs of both the formal processes (PPBS, JSPS/JSR, and JROC/DAB) and ad hoc analyses,
- provide consistency across all the players in the DoD resource decisionmaking environment,<sup>1</sup>

---

<sup>1</sup>By consistency we mean that there is a common tableau for viewing an issue. We do not mean that all the players agree on the issue's resolution, but rather that consistency provides a mechanism by which all the players can participate and understand the issues under debate.

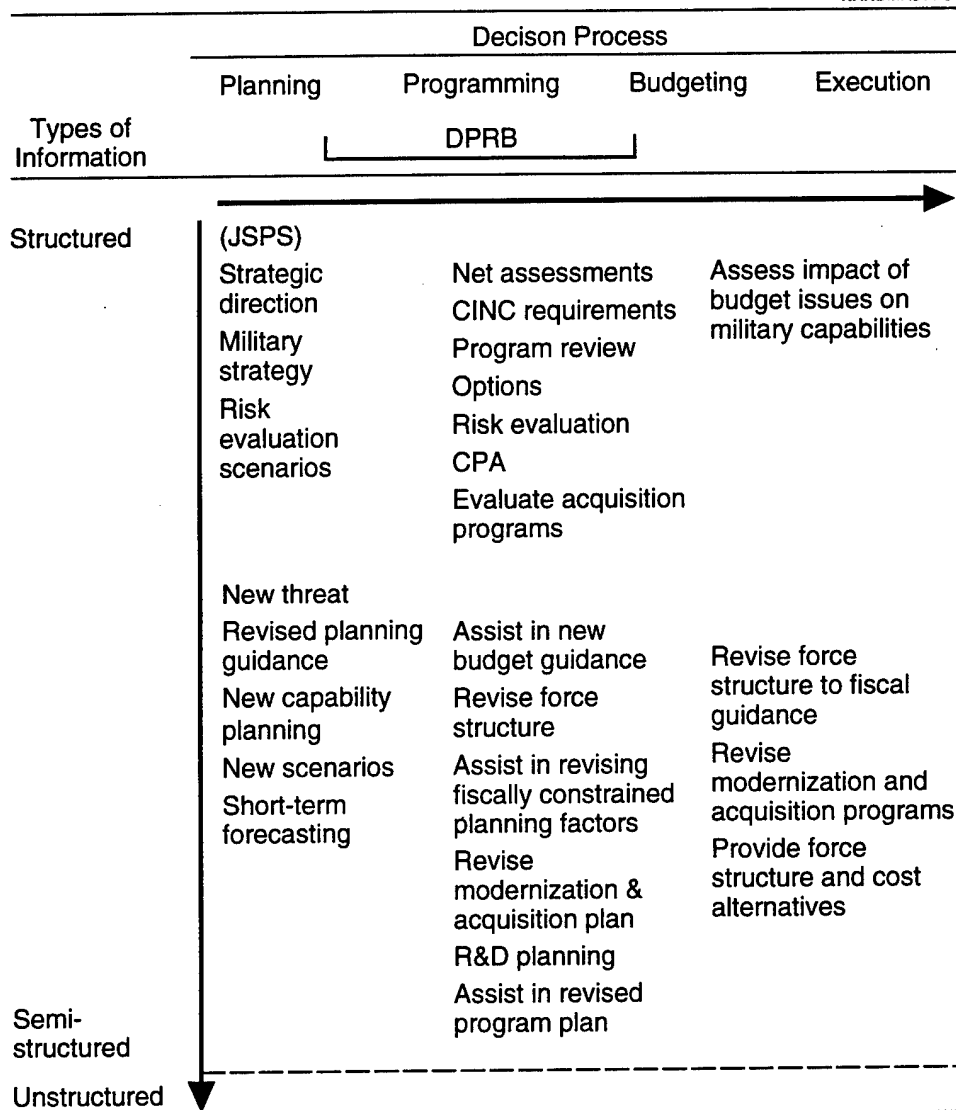


Figure 9—Structure the Decision Support Process to Plan for Uncertainty

- generate alternatives to present plans or costs so that effectiveness and cost trade-off issues can be addressed across operational objectives,
- motivate an end-to-end concept of operations development to ensure that such related issues as readiness and sustainability are addressed, and
- be sufficiently quantitative and replicable so that an audit trail of decisions can be reviewed as guidance changes.

## Some Considerations for an Analytic Architecture

The research team searched for architectures that were being used by the members of the Joint Staff, OSD, CINC staffs, or by the military departments. We assessed a number of analytic architectures to see if they met our criteria, or how they might be modified to do so. Our intent in Task 2 is to define an architecture that is acceptable to all the players so as to maximize its acceptance and integration into the Joint Staff analytic processes.

Any framework would have to support a cross-service integration function. It further must focus on capabilities and the generation of force options, as opposed to linking specific programs to operational tasks. By capabilities, we mean the best mix of *all resources* to support a national military strategy (NMS). The framework also needs to be used flexibly—to help structure analysis—rather than as an algorithm in which every “box” must be checked. Figure 10 shows what a framework might look like. The NMS provides the highest-level basis for placing needs for military capabilities in the proper context. Evaluation requires scenarios that are consistent with the objectives of the strategy. Concepts of operation define capabilities required to accomplish tasks using forces. Alternative ways of accomplishing a task are represented by force options. If there are no suitable force options for achieving a capability, a need has been identified (and a MNS is generated).

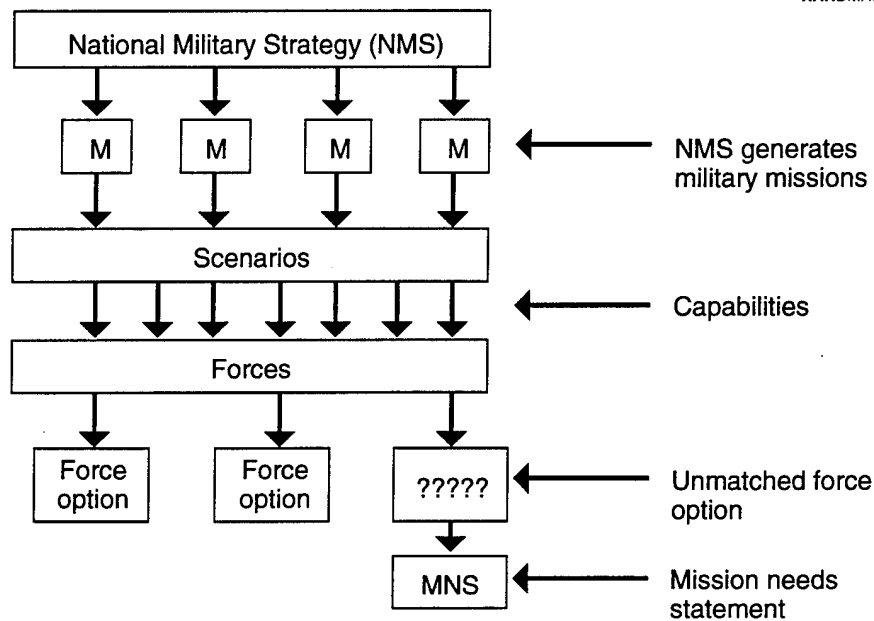


Figure 10—Link NMS to Force Options

## Assessing Attributes of a Framework: A Theater-Level Example

To assess how a framework might be useful to the CJCS in all phases of his decisionmaking, we initially examined it in a theater context. Early in our work the sponsor had expressed an interest in how previous RAND work for U.S. Forces in Korea (USFK) might be applicable to the Joint Staff. Therefore, we chose USFK. Interest in the assessment was heightened since USFK is a sub-unified command that has its own mission and must also operate in support of the United States Pacific Command (USPACOM). The analysis shows the importance of linkages and the interactive nature of resource definition, underlining our contention that a single, universally understood decision-support process is critical to the Joint Staff's role. Figure 11 shows an application of the framework to Korea. The right-hand side of the figure shows how various sources are used to assist in the definition of both objective and linkages. The theater objectives and tasks provide the basis for assessment of capabilities and their potential impact on changes in theater resources.

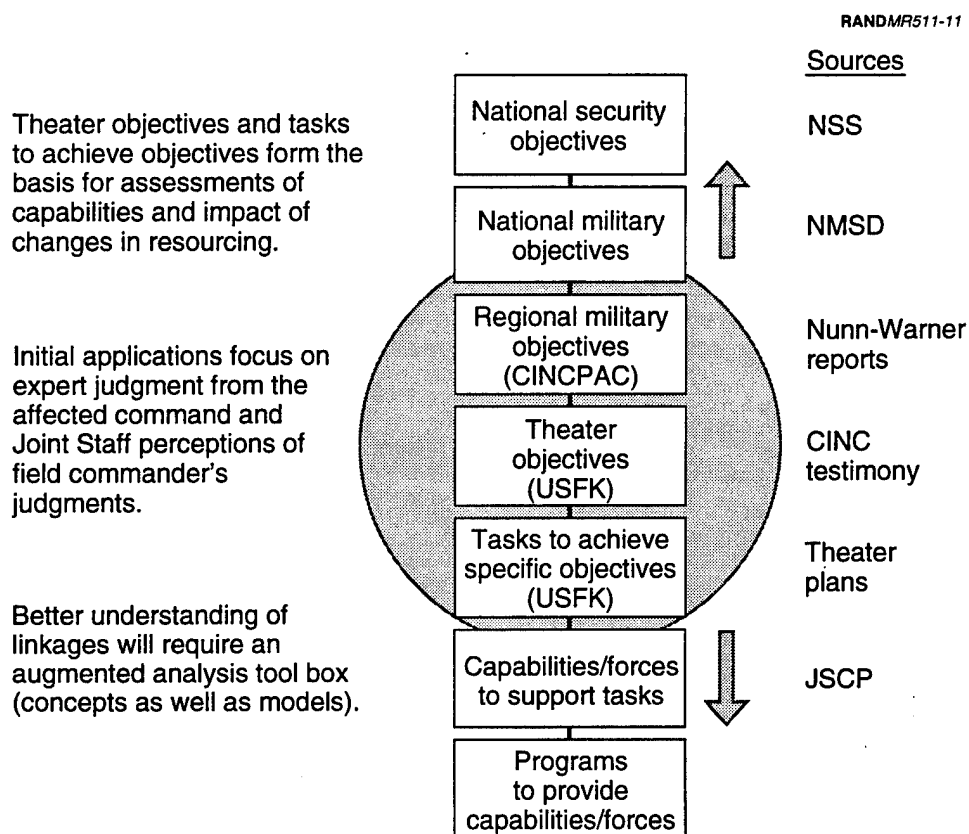


Figure 11—Theater-Level Assessments: Application to Korea

The regional military objectives are defined by the Commander-in-Chief of USCINCPAC. Those that are applicable to USFK are derived from USPACOM guidance and refined using policy documents such as Nunn-Warner reports. The initial applications of the regional theater objectives are derived from expert judgment from the affected command and the Joint Staff's perceptions of the field commander's judgments. These are reflected in the CINC's testimony and posture statements. The tasks to achieve specific objectives are derived from the classified and unclassified theater plans. Finally, the theater objectives must be linked to overall U.S. capability needs. These linkages are defined by the JSCP and during the informal meetings that the CINC's staff has with the Joint Staff as well as the CJCS's interactions with the different CINCs in private meetings and during the CINCs' colloquiums.

The decisionmaking framework would be supported by an analytic "tool box" containing the tools necessary to support all facets of the Joint Staff's analytic efforts, including concepts as well as models. Critical tools include relational data bases linking the FYDP to stock data, cost spreadsheets with program element data and graphics, and simulation models that examine forces, parameters, and targets and provide rules that tie to strategies. A wide variety of tools is needed to analyze the essential elements of planning and programming. To support the CJCS in his decisionmaking role, the Joint Staff needs to ensure program balance through the evaluation of service plans and programs. Effectiveness calculations and cost analyses serve a pivotal role in constructing planning guidance as well as in the evaluation of the options proposed by the services. Time-phased cost and effectiveness models are critical to intertemporal choices. Various proposed service and OSD options can be integrated, in part, through shared service and OSD models. We contend, however, that the Joint Staff should be selective about what types of tools it would adopt given that its role is to generate, validate, and integrate options independently for the CJCS and SECDEF rather than to generate specific service options, which is the role of the services or OSD.

Analysis can be viewed as a decision tree with various nodes. Appropriate types of analyses should be used for each level and type of issue. For instance, for such related issues as the development of a military strategy that is consistent with expected resources, the determination of the size of the DoD budget, and the posturing of alternative military strategies, the tool box should provide both qualitative and quantitative tools. One tool, interactive planning, is qualitative and necessitates that the Joint Staff interact with CINCs, OSD, and the services. Similarly, political-military gaming provides mostly qualitative analysis in that it necessitates interactions between theater staffs, OSD, and even academia with the

Joint Staff to provide political and military options. For the Joint Staff to address such broad issues as determining force mix and conventional force and nuclear force requirements while concurrently engaging in interactive planning and political-military gaming, the staff must also have in-house theater-level combat models, logistics models, and cost analysis models. And finally, to assess such political-military issues as U.S. involvement in peacemaking and peacekeeping missions, U.S. forward presence, and future joint operations within a North Atlantic Treaty Organization (NATO) or bilateral alliance, the staff must have at its disposal simulations that provide, among other things, relative performance analyses and engagement analyses.

We observed that the Joint Staff already has a number of analytic tools. However, we did not know if the tools available to the Joint Staff provided sufficient analytic support for the staff to address all of the issues it was being asked to evaluate. To get a rough sampling of the tools currently available to the Joint Staff, we consulted the Joint Staff's inventory.<sup>2</sup> The purpose of this quick analysis was to get a thumbnail sketch of tools the Joint Staff has at hand. Categories were either taken from the manual or defined by us if they had no specific categorization in the manual. (The sums do not always reflect the total because of multiple categories in the classification of models.)

Table 1 shows our sampling of the analytic tools—about 600 models—currently available to the Joint Staff. There are many simulations and operations (25

**Table 1**  
**Sampling of Analytic Tools**

Tools	Total Number <sup>a</sup>	Relative Weight (%)
Simulations (engagement analysis)	158	25
Operations, Training, & Evaluation (OT&E)	142	23
Effectiveness calculations	111	18
Operations/planning support	86	14
Force comparison/structuring analysis	43	7
Simulations (relative performance analysis)	30	5
Engineering studies	26	4
Logistics	16	3
Cost analyses	6	1
Time-phased cost models	4	1
Time-phased effectiveness models	4	1
Total	626	100

<sup>a</sup>Sums do not reflect totals due to multiple-category classification of models.

<sup>2</sup>*Catalog of Wargaming and Military Simulation Models*, 12th ed., Defense Technical Information Center, Defense Logistics Agency, Alexandria, Virginia, 7 February 1992.

percent of the total) and training and evaluation (23 percent) models available. Cost models, however, are few, as are force option/alternative models.

The Joint Staff must be staffed by people who possess the requisite skill mix. Good analysis is frequently simply the application of common sense. The Joint Staff personnel mix needs to include those with PPBS and Pentagon experience. These invaluable individuals understand "how the building runs," often have a network that yields critical information that is otherwise difficult to attain through formal channels (i.e., they can "make the informal system work"), and their knowledge lends credibility throughout the community.

The staff also must include policy analysts who have both qualitative and quantitative backgrounds, operations research specialists who can provide critical linkages to the needed modeling support, and cost analysts who understand how total costs must be included in all resource decisionmaking.

Based on these recommendations, we assessed the organizational structure and personnel alignment of the Joint Staff and addressed how the Joint Staff might improve its existing analytic support through organizational realignments.



## 5. Some Organizational Considerations

Based on the recommendation that the Joint Staff's work would be greatly enhanced through the development of an analytic-support architecture, we looked at how the Joint Staff organization might support such a system. Our analysis addressed two basic issues: What are the functions and processes of the organization? How might the organizational structure best support them?<sup>1</sup>

We began by examining the functions of the CJCS and how the Joint Staff supports those roles. To gain insights into the complexities of the Joint Staff's environment, we examined the Program Budget Decisions (PBDs)<sup>2</sup> and Defense Management Reduction Directives (DMRDs) process. The two functions involve all DoD players with which the Joint Staff could interact—the services, OSD staff, CINCs, directorates within the Joint Staff, and the CJCS. They are time-sensitive and often contain unstructured data. Figure 12 illustrates the process. Within two to five days, the Joint Staff must fully assess a large number of PBDs and DMRDs, develop credible options and responses, and coordinate the responses with a number of organizations. This process is continual. The response is then reviewed, integrated, and provided to the DEPSECDEF for his approval or disapproval. In such a "quick turnaround" environment, timely and quality information is critical.

This fast-paced process involves numerous subjects and players with differing perspectives. In addition, across the various organizations there are data differences and anomalies. Such a situation places a premium on prior analysis and the Joint Staff's ability to utilize it and order the relative priorities.

### Functions and Processes

Any reorganization of the Joint Staff must consider all of the functions that are performed, including the formal processes such as interactions with the CINCs, OSD, services, and allies, and the informal processes such as debates,

<sup>1</sup>Robert H. Waterman, Jr., *Adhocracy*, W. W. Norton & Company, N.Y., 1992; Peter F. Drucker, *Managing in Turbulent Times*, Harper and Row, New York, 1980.

<sup>2</sup>PBDs are issued between September and November after OSD/OMB (Office of Management and Budget) review, approve, and revise specific programs based on budget submissions and the hearings conducted with appropriation sponsors. During the PBD cycle, each service identifies certain pending decrements as major budget issues.

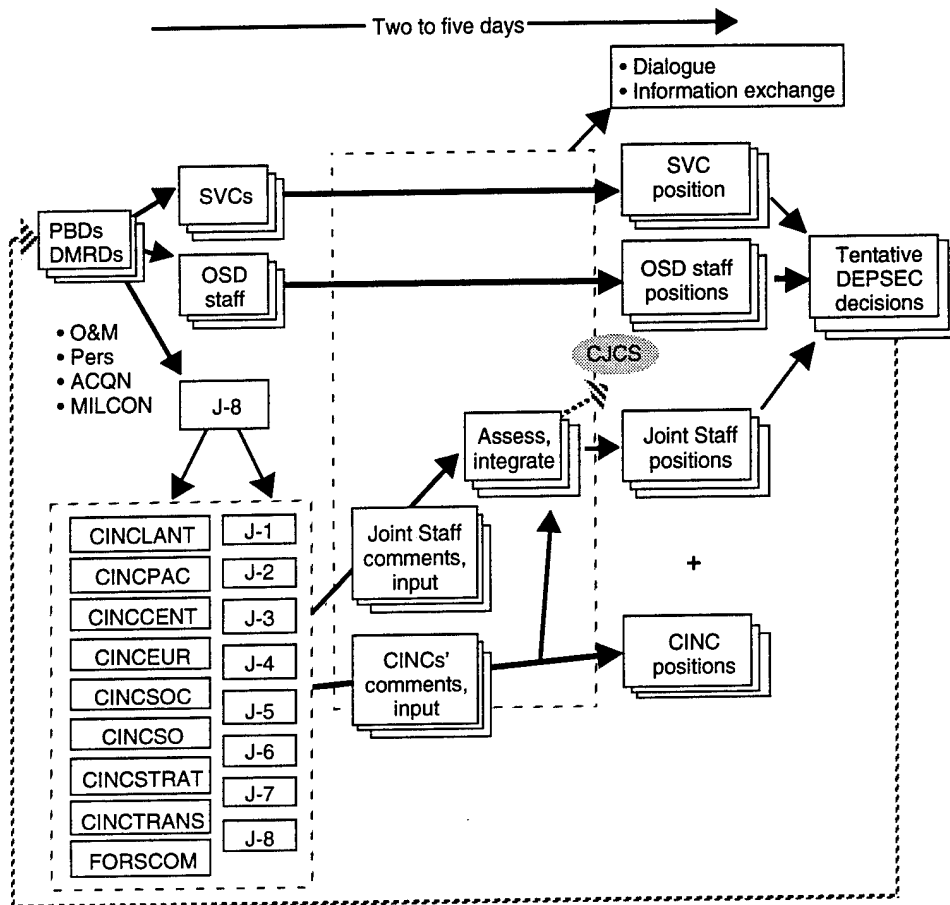


Figure 12—Timely Quality Information Is Critical

negotiations, and quick-response requests. The structure must also be sensitive to the various time horizons affecting the CJCS's work. For instance, the CJCS must consider fiscally constrained planning that extends out at least ten years beyond the program years. He also needs to be supported in his various formal PPBS roles and in the development of the production of the JSPS, JSR, CPA, and JMNA. The role of the various directorates is to support the CJCS in each of his roles. To do this well the staff members must have sufficient understanding of how these various roles and functions are integrated. The organizational structure needs to be sufficiently robust to provide flexible analytic support for both formal and informal processes.

The key functions of the Joint Staff are to

- provide credible advice and options to the SECDEF and President,

- ensure flexibility to adjust to the fluid environment in which DoD is operating, including strategy, policy and planning, and resource allocation,
- provide credible facts and decisions to the SECDEF and President,
- participate in the PPBS process, including the formal and informal processes, and
- assist in setting requirements priorities.

These functions occur within the context of the CJCS's three major activities: real-world crisis resolution, current operational planning with a zero- to two-year time horizon, and current and future fiscally constrained planning with a time horizon of zero to fifteen years.

We then identified the key processes required to support the functions:

- A process to build responsive and credible analysis. The analysis, and the decisionmaking that it supports, cannot be mechanical. It has to be sufficiently flexible to accommodate the myriad questions and issues that involve the CJCS, but also must be credible.
- A process that includes a variety of analysis tools to support the CJCS in providing sound advice. These include models, service data bases, analytic-support tools, and simulations.

Identifying the functions and the supporting processes enabled us to define some global organizational issues, including such topics as streamlining the staff to focus more attention on analysis and option building. We also concluded that the organizational structure had to provide a quick-response capability. And, finally, we concluded that there had to be an in-house centralized analytic-support capability.

We then determined that an assessment of the Joint Staff's number and distribution of members could provide useful insights into the staff's capabilities to support the CJCS in all of his various roles. We examined the numbers of people in the directorates in light of the work demands being placed on a directorate. Since the analysis was to provide an overview of the Joint Staff, we used the formal organization chart and the Staff Function Job Description manual to assess the staff's size and activities.

We found that the J-8, where many of the key integration functions occur, had only some 131 personnel, a number that was probably too small for its role. We also concluded that many directorate functions were probably not as streamlined as they might be. For instance, the J-7 performed many functions that might

more logically fit with the J-3 or the J-8. These functions include operational requirements, joint exercises and training, and the evaluation and analysis division.

Any reorganization also should address the intertemporal dimensions of the CJCS's various roles. Figure 13 shows the various roles of the CJCS and their temporal implications. The right-hand side of the figure lists the responsible directorates. The shadowed boxes indicate that most of the activities have resource allocation and management implications.

The organizational structure must accommodate all of these diverse activities. In addition, the organizational structure must be functionally balanced so that no single view predominates and debate can take place. The staff must be organized to be flexible enough to handle unplanned requests.

Any proposed organizational changes must address organization effectiveness, efficiency, and implementation. By effectiveness we mean that any assessment—planned or unplanned—and its output must be timely, balanced, executable, and replicable. Efficiency requires that the organizational structure conserve staff

RANDMR511-13

	Time Horizon (yr)			Process	Current Organizational Lead
	0-2	3-6	7-15/20		
Current operations					
• Contingency planning	X			JOPES	J-7
• Deficiencies	X			CSPAR	J-7
Requirements					
• CINC priorities	X	X		IPL	J-8
• Acquisition programs	X	X	X	JROC	J-7
				PPBS	J-8
				DAB	J-8
Fiscally constrained					
• Strategic plans		X	X	JSPS/PPBS	J-5
• Program & budget alternatives	X	X	X	Quiet studies	J-8
• Roles & missions	X	X		PPBS	J-8
• Doctrine, training, & education	X	X	X	Ad hoc	J-5
					J-7

 Generate a demand for resources and their allocation.

NOTE: See Acronyms as necessary.

Figure 13—Roles of the Chairman and the Supporting Organizations

and analytic resources. The Joint Staff is organized so that there is a low risk of misinterpretation across the staff, to the CJCS, and the external community. Additionally, a consistent record of decisions should be maintained.

Any recommendations for reorganization must also consider the feasibility of the changes. Many reorganization studies seek to completely rebuild the structure, but such drastic reorganizations usually fail because they create too much staff turbulence. Thus, organizational realignments need to redefine critical aspects of the role of the organization, and at the same time attempt to minimize staff turbulence. Finally, we concluded that any recommended Joint Staff reorganization must strongly link functions to processes.

## Some Management Principles

Another aspect to any reorganization is the consideration of "good business practices"—effective strategic resource management planning that satisfies independence and separability criteria. The *independence criterion* means that organizations should be structured so that choices of resource mixes by one element of an organization do not influence the choices made by other elements. In this case, supply—the available resources—is kept separate from the demand—the requirements for those resources. Integration—the trading off of supply against demand to attain balanced decisions—is considered independent of both supply and demand.

The *separability criterion* calls for the disaggregation of the entire system (or problem) into subsystems. This means that sub-issues should be addressed at the appropriate level. Issues are aggregated upward in order to deal with them at the right level of detail. Figure 14 shows how the independence and separability criteria were applied to the Joint Staff.

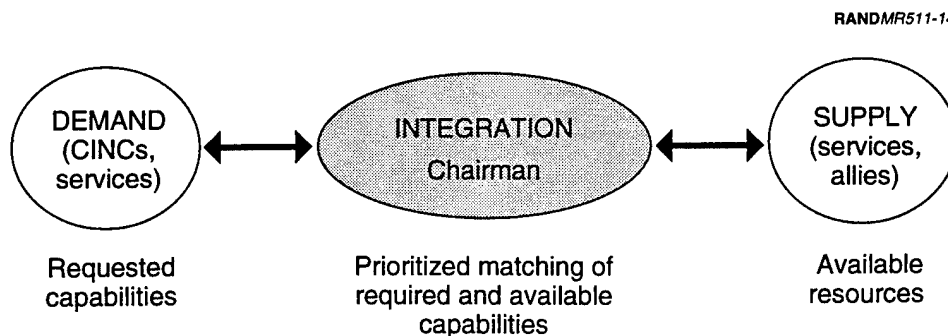


Figure 14—Demand, Supply, and Integration

Our assessment of the Joint Staff directorates indicates that on the demand side the J-1, J-3, J-4, J-5, J-6, J-7, and J-8 directorates all participate. There is little, if any, integration of the demand side in program factors or force options. Rather, the various directorates provide unconstrained lists of demands to the J-8.

On the supply side, the functions of personnel/training, R&D, facilities, logistics, and procurement options are integrated by the J-8. The directorate also provides the quick-turnaround analysis and total force options. The J-1, J-4, and J-7, however, perform the integration of their respective areas. A more desirable goal would be for all of the directorates to integrate their respective supply options so that these could be integrated by the J-8.

The integration function includes such activities as the development and publication of guidance, integration of demand and supply, review of allocated resources, generation of options/alternatives, and finally, development and delivery of congressional testimony.

The integration function is the least developed of the three functions. The review of allocated resources and development of options/alternatives functions are the most developed. This lack of development generally reflects the newness of the emerging role of the CJCS (and the Joint Staff) as the integrator of DoD-wide resources.

## Some Observations

The review of the Joint Staff's role in the development and integration of the supply, demand, and integration functions revealed that the organizational structure reflects its 1986 responsibilities more than its current, more mature role as integrator of DoD-wide resources. Given the CJCS's expanding role as an integral player in identifying and funding DoD resources, any reorganization should consider how the staff could strengthen and consolidate its fiscally constrained planning and analytic integration functions. The director of the Joint Staff could examine options and weigh issues that could not be resolved by the staff. He could also generate options that could only be considered from his unique vantage point. The roles of the directorates would be shaped by their function in each of the three major activities that the CJCS participates in: real-world crisis resolution, current operational planning that has a zero- to two-year time horizon, and current and future fiscally constrained planning with a time horizon of zero to fifteen years.

Any revised organizational structure should have certain attributes. All of the Joint Staff and key players should participate. Staff perspectives should be

balanced in the manner in which views are shared. The integrator, which we view as the J-8, would function as a "gatekeeper" who provides alternatives/options to the CJCS and VCJCS. All Joint Staff functions would be linked, with the director of the Joint Staff responsible for assessing the completeness of the options and facilitating the debate. His role is not to decide on a specific option.

Dividing functional responsibilities within directorates along the lines of demand, supply, and integration allows the rules of independence and separability to be maintained. Issues are discussed at the appropriate levels and alternatives generated. No single participant should have a preponderance of influence. Finally, our concept supports credible, persuasive option building and generation of alternatives. It links military strategy (through the J-5) with current operations (the J-3) and the PPBS (J-8). The reorganization also provides the CJCS with independent and balanced advice.

As the Joint Staff becomes more functionally mature, it might want to consider reorganizing to improve performance of its functions and the processes that it supports. Reorganization considerations include

- centralizing technology, requirements, and acquisition functions,
- consolidating modeling and simulation activities,
- merging exercise program responsibilities into operations,
- exploring merging strategy functions with force structure and resource assessment so that strategy is linked to fiscally constrained planning, and
- redefining logistics functions to reflect cross-service and CINC requirements.

(Since this report was completed, OSD has designated the Joint Staff as a major provider of analyses. In response to this emerging role, the Joint Staff has been reorganized. Many of the suggestions made here were adopted. Of particular importance is the consolidation of many integration functions under the J-8. The J-8 is in charge of the JROC and many POM-related issues.)

## Bibliography

*Army Command and Management: Theory and Practice*, U.S. Army War College, Carlisle Barracks, Pennsylvania, 1992–1993.

*Catalog of Wargaming and Military Simulation Models*, 12th ed., Defense Technical Information Center, Defense Logistics Agency, Alexandria, Virginia, 7 February 1992.

Drucker, Peter F., *Managing in Turbulent Times*, Harper and Row, New York, 1980.

Goldwater-Nichols, Public Law 99-433, 1 October 1986.

Keller, Commander William C., *The Defense Resource Allocation Process*, U.S. Naval War College, Newport, Rhode Island, June 1990 revision.

Lewis, Leslie, C. Robert Roll, and John D. Mayer, *Assessing the Structure and Mix of Future Active and Reserve Forces: Assessment of Policies and Practices for Implementing the Total Force Policy*, RAND, MR-133-OSD, 1992.

Packard, David, et al., *A Quest for Excellence: Final Report to the President*, President's Blue Ribbon Commission on Defense Management, June 1986.

Przemieniecki, J. S., *Acquisition of Defense Systems*, American Institute of Aeronautics and Astronautics, Washington, D.C., 1993.

Waterman, Robert H., Jr., *Adhocracy*, W. W. Norton & Company, New York, 1992.

### *DoD Documents*

Chairman of the Joint Chiefs of Staff, Memorandum of Policy No. 7, 17 March 1993.

Chairman of the Joint Chiefs of Staff, Memorandum of Policy No. 9, 1993.

PPBS: DoD Instructions.

JSR Instructions and Published Evaluation.

CINCs' Congressional Testimony.

Integrated Priority Lists.

Internal Memoranda, Military Departments.



*Interviews*

Members of Joint Staff directorates J-7, J-5, and J-8.

CINC Staff, Korea.

CINC Staff, USSOCOM.

Members of Deputy Chief of Staff for Operations and Plans.

Air Force Staff.

OSD Program Evaluation and Analysis (OSD/PA&E) Staff.